AIRCRAFT GENERAL KNOWLEDGE

No.	question	option_1	option_2	option_3	option_4
1	The temperature of the gases within the cylinder of a four stroke engine during the power stroke will: 1	Be constant.	Decrease.	Increase.	Follow Charles's Law.
2	The number of revolutions of the crankshaft required to complete a full cycle in a four stroke engine is: 2	6	4	2	8
3	The inlet valve opens before T.D.C in the exhaust stroke to: 3	Increase the pressure in the cylinder on completion of the induction stroke.	Reduce engine vibration.	Allow the incoming mixture to mix with a certain proportion of the exhaust gases.	Induce a greater amount of mixture into the cylinder.
4	The correct working cycle of a four stroke engine is: 4	Exhaust, power, induction, compression.	Compression, power, exhaust, induction.	Induction, power, compression, exhaust.	Power, exhaust, compression, induction.
5	Valve overlap is incorporated in the valve timing of a piston engine to: 5	Improve volumetric efficiency.	Reduce wear on the big end bearings.	Increase the engine's compression ratio.	Prevent a weak cut when the engine is accelerated rapidly.
6	With an increase in the rotational speed of a four stroke engine, the valve overlap: 6	Increases.	Decreases.	Remains constant.	Increases up to ground idle and thereafter decreases.
7	In a normally aspirated engine, exhaust back pressure: 7	Decreases as an aircraft climbs and thereby reduces the rate of decline of the engine power output	Increases as an aircraft climbs and thereby reduces the engine power output.	Is affected by the power lever position.	Decreases as an aircraft descends and thereby improves the engine power output.
8	When the spark ignites the mixture: 8	The explosion pushes the piston down.	The mixture changes from rich to weak forward of the flame front.	Complete combustion occurs within 8 to 10 microseconds.	Temperature and pressure increase within the cylinder.
9	If the volume of a quantity of gas is halved during compression:	Its pressure is approximately doubled.	Its temperature remains constant.	Its mass is approximately doubled.	Its pressure is approximately halved.
10	The term "Indicated Mean Effective Pressure" refers to:	The maximum working pressure in the engine cylinder.	The effective working pressure in the cylinder during the power stroke.	The pressure achieved during compression.	The minimum working pressure applied to the piston during the cycle.
11	The degrees of rotation to complete a full cycle on a nine cylinder engine will be: 11	180	360	720	80

12	The firing interval of a six cylinder horizontally opposed engine will be: 12	180	120	60	360
13	Which of the following statements would be correct for a double banked radial engine? 13	There will always be an odd number of cylinders.	Radial engines are generally liquid cooled.	The linear distance from TDC to BDC will accommodate two throws.	Radial engines cannot suffer from hydraulicing.
14	On a four cylinder engine with a total volume of 9600cc, bore area of 100cm2 and a crank throw of 10cm, what would the Compression Ratio be? 14	7:1	8:1	24:1	6:1
15	With an increase in outside air temperature, specific fuel consumption will: 15	Increase.	Decrease.	stay the same.	stay the same for all temperatures up to and including 15°C and thereafter increase.
16	Combustion, in a four stroke engine, theoretically occurs at:	A constant pressure.	A constant temperature.	A constant volume.	A constant velocity.
17	In a convergent duct:	The pressure and velocity increase, the temperature decreases.	The pressure and temperature decrease, the velocity increases.	The temperature and velocity increase, the pressure decreases.	The pressure and velocity remain constant, the temperature decreases.
18	During the compression stroke:	The temperature of the gases remains constant.	The volume of the gases increases.	The mass of the mixture decreases.	The mass of the mixture remains constant.
19	From Top Dead Centre (TDC) to Bottom Dead Centre (BDC) on the practical power stroke:	The temperature of the gases rises for a short time then decreases.	The pressure of the gases remains constant.	The temperature of the gases decreases from TDC to BDC.	The density of the gas remains constant.
20	In a divergent duct:	The velocity and temperature increase, the pressure decreases.	The temperature and pressure increase, the velocity decreases.	The temperature and pressure decrease, the velocity increases.	The velocity and temperature decrease, the pressure increases.
21	Ideally, maximum pressure is attained within the cylinder:	When combustion is complete.	At the end of the compression stroke.	During the period of valve overlap.	When combustion temperature is at a minimum.
22	The power output of an internal combustion engine:	Is proportional to the volume of mixture induced into the cylinder.	Increases with increased humidity.	Falls as the charge temperature falls.	Is proportional to the weight of the mixture induced into the cylinder.
23	During the period of valve overlap:	The action of the exhaust gases flowing past the exhaust valve increases the pressure within the cylinder.	The temperature of the exhaust gases increases the mass of incoming mixture.	The action of the exhaust gases flowing out past the exhaust valve tends to reduce the pressure in the	The crankshaft is moving past Bottom Dead Centre.

				cylinder.	
24	The power output of an internal combustion engine can be increased by:	Increasing the area of the cylinder.	Increasing the length of the stroke.	Increasing the engine R.P.M.	All of the above.
25	Valve Overlap is:	The number of degrees of camshaft rotation during which the inlet and exhaust valves are open at the same time.	The number of degrees of crankshaft movement during which the inlet and exhaust valves are open at the same time.	The distance the piston travels while the inlet valve remains open after B.D.C.	The number of degrees of crankshaft rotation during which the inlet and exhaust valves are open at the same time around B.D.C.
26	Excessive blue smoke from the exhaust of an engine that has been warmed up to normal operating temperature may indicate that:	The mixture is too rich.	The oil pressure relief valve has stuck in the open position.	The piston rings are worn or stuck in their grooves.	The oil pressure is too low.
27	The camshaft of a horizontally opposed four stroke engine rotates at:	Twice engine speed.	Engine speed.	Twice magneto speed.	Half engine speed.
28	A reduction gear is fitted:	Between the camshaft and the propeller.	Between the pushrods and the valves.	Between the crankshaft and propeller.	Between the connecting rod and the crankshaft.
29	Prolonged use of low R.P.M could cause contamination of the:	Oil filter.	spark plug.	Carburetor.	Oil pump.
30	If the starter Engaged Light remains on after engine start, you should:	shut the engine down immediately.	Ignore it if it remains on for longer than 30 seconds.	shut the engine down if the light remains on for more than 30 seconds.	shut the engine down if the light remains on for more than 60 seconds.
31	The crankshaft of an `in line' four cylinder aircraft engine:	Rotates at half the speed of the camshaft.	Will have the crank throws spaced 90 degrees apart.	Allows a firing order of 1-3-4-2.	Will not flex or twist.
32	Two valve springs are fitted to each valve:	To minimise camshaft wear.	To allow a greater cam rise.	To prevent valve rotation.	To reduce valve bounce.
33	Excessive valve clearance:	Will prevent the valve closing completely.	Is eliminated when the engine reaches working temperature.	Will cause the valve to open early and close late.	Will cause the valve to open late and close early.
34	Valve lead occurs when:	The inlet valve opens before bottom dead centre.	The exhaust valve opens before the inlet valve.	The exhaust valve opens before top dead centre.	The inlet valve opens before top dead centre and the exhaust valve opens before bottom dead centre.
35	Insufficient tappet clearance at the inlet	The valve to open early and	The valve to open late	The mixture in that	Misfiring.

	valve would cause:	close late.	and close early.	cylinder to be weak.	
36	The length of the stroke is:	Equal to the length of the cylinder.	Determined by the size of the piston.	Equivalent to twice the crank throw.	Inversely proportional to the engine power output.
37	Tappet clearance is measured between the:	Push rod and the valve tip.	Valve tip and the rocker pad.	Valve spring and the rocker pad.	Valve tip and the rocker cover.
38	The number of revolutions required to complete the induction and compression stroke in a six cylinder four stroke engine is:	1	2	6	4
39	The purpose of a crankcase breather is to:	Maintain the oil tank pressure at atmospheric.	Prevent distortion of the crankcase.	Allow the oil to breathe.	Prevent pressure building up inside the crankcase.
40	Tappet clearance is provided in a piston engine to:	Adjust the valve timing.	Allow for expansion of the valve gear as the engine warms up.	Allow for manufacturing tolerances.	Prevent valve bounce.
41	Piston rings are manufactured from cast iron:	Because it has a negative coefficient of expansion.	To take advantage of its extreme malleability.	Because of its self lubricating qualities.	To take advantage of its brittleness.
42	Hydraulic valve tappets are used on some engines to:	Eliminate valve bounce.	Eliminate constant valve adjustment and checks.	Give a more positive closing action.	Give a more positive opening action.
43	The swept volume of a cylinder is:	The area of the piston crown x the stroke.	The area of the cylinder cross section x the cylinder length.	Half of the clearance volume.	The total volume + the piston volume.
44	The thermal efficiency of a piston engine can be increased by:	Increasing the R.P.M.	Increasing the combustion chamber volume.	Advancing the ignition point into the direction of rotation.	Increasing the compression ratio.
45	A normally aspirated engine is one which:	Has four cylinders.	Is not supercharged.	Is never air cooled.	Is all of the above.
46	The Compression Ratio of an engine may be defined as the:	swept volume + clearance volume - swept volume.	swept volume + clearance volume - clearance volume.	Total volume - clearance volume - clearance volume.	swept volume - (swept volume + clearance volume).
47	An engine has a total volume of 2,100 cm3 and a swept volume of 1,800 cm3. Its compression ratio is:	7:6	6:1	7:1	6:7
48	Volumetric efficiency may be defined as:	The ratio of the volume of the mixture drawn into the cylinder during normal engine working, to the volume of the mixture	The ratio of the volume of air and the volume of fuel drawn into the cylinder.	The ratio of the volume of one of the cylinders to the volume of all of the cylinders in	The efficiency with which the air and fuel mix together in the cylinder.

		which would be required to fill the cylinder under normal temperatures and pressures.			
49	The ratio of the power produced by an engine to the power available in the fuel is known as the:	specific fuel consumption.	Indicated horse power.	Volumetric efficiency.	Thermal efficiency.
50	Specific Fuel Consumption (S.F.C)	Is the inability of the internal combustion engine to use any fuel other than that specified by the manufacturer.	Becomes greater as the efficiency of the engine improves.	Is the weight of fuel used by an engine per unit horse power per unit time.	Increases in proportion to the thermal efficiency.
51	A method of improving "Volumetric Efficiency" is:	Valve overlap.	The use of carburettor heat.	Weakening the mixture.	To make the mixture richer.
52	The thermal efficiency is the ratio of:-	thrust developed to energy supplied	useful work output to energy input	useful work done to heat energy added	output energy to input energy
53	The primary task of the lubrication is to:	Reduce friction and Clean the engine	Cool the engine and Act as a hydraulic medium	Reduce friction and Reduce component wear	Reduce friction and Act as a hydraulic medium
54	In a piston engine dry sump oil system, the oil temperature and pressure are sensed:	When the oil is leaving the sump.	For the temperature when the oil is leaving the tank, and for the pressure when the oil is leaving the pressure pump.	For the oil temperature when the oil is entering the tank and for the pressure when it is entering the pressure pump.	At the same point.
55	Oil returning to the oil tank is filtered by:	The oil pressure filter.	The oil tank filter.	A micron size multi-bore filters assembly.	The scavenge filter.
56	The purpose of the crankcase breather is to:	Maintain the pressure in the oil tank at atmospheric pressure.	Ease the task of the oil scraper ring.	Prevent pressure building up inside the crankcase.	Prevent distortion of the crankcase.
57	The most probably cause of small fluctuations in the oil pressure would be:	Lack of oil.	The pressure relief valve sticking.	Air in the oil tank.	The scavenge pump working at a greater capacity than the pressure pump.
58	The extra space in the oil tank is to cater for:	Frothing and aeration of the oil as it passes through the engine.	Fire protection.	The accommodation of extra oil contents on long duration	Anti-surge action.

				flights.	
59	The scavenge pump system in a lubrication system has:	A by-pass in case of blockage.	A smaller capacity than the pressure pump.	A bifurcated tertiary drive system.	A larger capacity than the pressure pump.
60	The engine is checked for dead cut at:	A power check.	slow running.	Cruising RPM.	Full throttle.
61	The distributor directs:	Voltage from the primary winding to the spark plug.	Voltage from the secondary winding to the primary winding.	Voltage from the magneto secondary winding to the spark plug.	Voltage from the secondary winding to the contact breaker.
62	To obtain a spark across the gap between two electrodes:	The circuit must have high EMF.	The circuit must have high ohms.	The circuit must have high current flow.	The circuit must have an impulse union.
63	The purpose of an ignition switch is:	To control the primary circuit of the magneto.	To prevent condensation.	To connect the secondary coil to the distributor.	To connect the battery to the magneto.
64	In a complex engine as RPM increases the ignition timing may be:	Advanced.	Retarded.	Not altered.	Only retarded.
65	An impulse starter is a device to assist in starting an engine which uses:	A leaf spring.	A coil spring to increase temporarily the speed of rotation of the magneto.	A special starting battery which provides a sudden impulse of electricity to the plugs.	An explosive inserted in a special tube.
66	If the specific gravity of a fuel is known to be 0.7, 100 gallons of it will weigh:	7001b	701b	7000lb	7,100 lb
67	A fuel grade which is used in typical aircraft engines is:	D.T.D.585/100	D.E.R.D.2479	AVGAS 100	D.E.R.D.2484
68	The "anti-knock" value of a fuel is its:	Degree of resistance to pre-ignition.	Resistance to adiabatic combustion.	Ability to oppose burning.	Resistance to detonation.
69	The differences between AVGAS 100 and AVGAS 100 LL are: Colour Anti-Knock value	same same	same Different	Different same	Different Different
70	The Octane rating of a fuel is determined by comparison with mixtures of:	Methane and orthodentine.	Heptane and iso octane.	Methane and iso octane.	Heptane and orthodentine.
71	The calorific value of a fuel is the:	Kinetic energy contained within it.	Heat energy in the fuel.	Heat energy required to raise the temperature of the fuel to its boiling point.	Heat energy required to raise the temperature of the fuel to its boiling point from absolute zero.
72	The octane rating of a particular grade of	It will act as both 100 octane	With a rich mixture it	Its "anti-knock"	With a weak mixture it

	fuel is given as 100/130, this indicates that:	and 130 octane fuel at take off power settings.	will act as 100 octanes, and with a weak mixture it will act as 130 octanes.	qualities are identical to iso-octane.	will act as 100 octane, and with a rich mixture it will act as a 130 octane fuel.
73	Tetra ethyl lead is added to some aviation fuel to:	Decrease its octane rating.	Decrease the risk of detonation.	Increase its calorific value.	Increase its specific gravity.
74	If the vent pipe of an aircraft's fuel tank becomes blocked, it will cause:	The pressure in the tank to fall when fuel is used.	The pressure in the tank to rise when fuel is used.	The evaporation rate of the fuel to decrease as fuel is used from the tank.	The fuel pressure at the carburettor to rise.
75	Detonation is liable to occur in the cylinders:	With an over rich mixture at idle power.	With a weak mixture and high cylinder head temperature.	With a rich mixture at high power settings.	At very low engine speed.
76	Pre-ignition refers to the condition when:	A rich mixture is ignited by the spark plug.	The spark plug ignites the mixture too early.	The mixture is ignited by abnormal conditions within the cylinder before the normal ignition point.	The mixture burns in the inlet manifold.
77	An exhaust gas temperature gauge is powered by:	12v DC	115v AC	28v DC	A thermocouple which generates its own voltage
78	Flame Rate is the term used to describe the speed at which:	The mixture burns within the cylinder.	The combustion pressure rises within the cylinder.	Peroxide forms within the cylinder.	Fulminates form with the cylinder.
79	The colour of 100 / 130 grade low lead fuel is:	Green.	Blue.	Red.	straw yellow.
80	Weakening the mixture below the best fuel/air ratio will cause the engine power to:	Decrease.	Increase initially, but decrease below take off power.	Increase.	Be unaffected by altitude increase.
81	For maximum endurance the mixture control should be set to:	Weak.	The chemically correct state.	Between rich and weak.	Rich.
82	An air/fuel ratio of 9:1 would be considered:	Chemically correct.	Extravagant.	Rich.	Weak.
83	Because of the reduction in the density of the atmosphere associated with an increase in altitude:	The mixture control must be moved towards the weak position.	The throttle must close progressively to maintain the best air/fuel ratio.	The mixture must be progressively richened to compensate for the power loss.	The octane rating of the fuel must be increased.
84	A chemically correct mixture is:	15:1 (fuel : air)	15:1 (air: fuel)	13:1 (fuel : air)	13:1 (air: fuel)
85	While weakening the mixture from the	Increase	Decrease	Decrease then	Increase then decrease

	chemically correct mixture the EGT will			increase	
86	Which of the following mixtures theoretically would produce the maximum RPM?	14:1 (air : fuel)	14:1 (fuel: air)	15:1 (fuel : air)	15:1 (air: fuel)
87	A weak mixture is used for which of the following?	take off	climbing	engine starting	cruising
88	While using a weak mixture which of the following would be an incorrect statement?	The charge would be cooled due to a larger proportion of Nitrogen in the cylinder.	The charge would burn slower due to a larger proportion of Nitrogen in the cylinder.	The ignition may have to be advanced.	The ignition may have to be retarded.
89	While using a rich mixture which of the following would be a correct statement?	The charge would burn slower.	All of the fuel would be used during combustion.	All of the oxygen would be used during combustion.	Cylinder head temperature increases while richening further.
90	The pressure in the induction manifold of a normally aspirated engine:	Remains constant as the throttle is opened.	Decreases as the throttle is opened.	Initially increases as the throttle is opened but decreases after approximately the half open position.	Increases as the throttle is opened.
91	The purpose of an accelerator pump is to:	Assist in the atomization of the fuel before it leaves the discharge nozzle.	Prevent a rich cut when the throttle lever is advanced rapidly.	Prevent dissociation and detonation.	Prevent a weak cut when the throttle lever is advanced rapidly.
92	The fuel flow to a piston engine will vary according to:	The R.P.M. and the throttle position only.	The R.P.M., the throttle position and the mixture setting.	The R.P.M. and the mixture setting only.	The R.P.M. only.
93	The primary function of a diffuser in a carburettor is to:	Control the mixture strength over part of the engine speed range.	Vent air from the float chamber.	Emulsify the fuel during engine acceleration.	Enable adjustment of the engine slow running speed.
94	For an aircraft with a fixed pitch propeller, propeller efficiency will be:	Low at low speed, high at high speed.	High at low speed, low at high speed.	Constant at all speeds.	Low at both low and high speed, and highest at cruising speed.
95	The blade angle of a fixed pitch propeller would be set to give the optimum angle:	During take off.	During the cruise.	At the maximum level flight speed.	For landing.
96	Propeller torque results from the forces on the propeller:	Caused by the airflow, giving a moment around the propeller's longitudinal axis.	Caused by centrifugal effect, giving a moment around the propellers' longitudinal axis.	Caused by the airflow, giving a moment around the aircraft's longitudinal axis.	Caused by centrifugal effect, giving a moment around the aircraft's longitudinal axis.
97	The thrust force of a propeller producing	Tends to bend the propeller	Tends to bend the	Tends to bend the	Causes a tension load in

	forward thrust:	tips forward.	propeller tips backward.	propeller in its plane of rotation.	the propeller.
98	A propeller which is windmilling:	Rotates the engine in the normal direction and gives some thrust.	Rotates the engine in reverse and gives drag.	Rotates the engine in reverse and gives some thrust.	Rotates the engine in the normal direction and gives drag.
99	The alpha range of a variable pitch propeller is between:	Feather and flight fine pitch stop.	Feather and ground fine pitch stop.	Flight fine pitch stop and reverse stop.	Ground fine pitch and reverse stop.
100	When the CSU is running "on speed":	The governor weight centrifugal force balances the CSU spring force.	The CSU spring force balances the oil pressure.	The governor weight centrifugal force balances the oil pressure.	The supply of oil to the CSU is shut off.
101	The purpose of the Centrifugal feathering latch on a single acting propeller is to prevent:	CTM turning the propeller to fine pitches.	The propeller from accidentally feathering at high rpm.	The propeller from feathering on shut down.	The propeller from overspeeding if the flight fine pitch stop fails to reset.
102	If it is required to increase the rpm of a variable pitch propeller without moving the power lever, the propeller lever must be moved:	Forward, the governor weights move inwards, blade angle increases.	Backward, the governor weights move outwards, blade angle decreases.	Forwards, the governor weights move inwards, blade angle decreases.	Forwards, the governor weights move outwards, blade angle decreases.
103	A propeller blade is twisted along its length:	To compensate for the Centrifugal Twisting Moment.	To maintain a constant angle of attack from root to tip of the blade.	To increase the thrust given by the tip.	To maintain constant thrust from root to tip.
104	The greatest stress on a rotating propeller occurs:	At the tip.	At about 75% of the length.	At the mid point.	At the root.
105	An `Auto - Feathering' system senses:	Low rpm.	Decreasing rpm.	High torque.	Low torque.
106	Propellers may have an `avoid' range of rpm:	To avoid resonance peaks which could lead to fatigue damage to the propeller.	To avoid excessive propeller noise.	Because the engine does not run efficiently in that rpm range.	To avoid the possibility of detonation occurring in the engine.
107	The Manifold Pressure Gauge fitted to a supercharged engine measures:	The absolute pressure in the induction manifold.	The differential pressure across the supercharger compressor.	The ratio between the atmospheric pressure and the cam rise at the supercharger inlet.	The pressure upstream of the throttle valve.
108	The use of a turbo-charger on an engine will:	Improve the exhaust scavenging efficiency.	Raise the volumetric efficiency of the engine.	Cause an automatic rise in the engine R.P.M. as altitude is gained.	Cause an automatic rise in engine power as altitude is gained.

109	The power increase that occurs with initial increase in altitude when an engine has an internal supercharger fitted, is due to: supercharger fitted, is due to:	The reduced weight of mixture being passed to the engine.	The decreasing density of the atmosphere.	The reducing exhausts back pressure.	The increasing charge temperature.
110	The speed of the turbine of a turbo-charger is controlled by:	The diversion of exhaust gases.	Controlling the exit of the exhaust gas passing out of the eye of the impeller.	The use of a variable controller.	An automatic gearbox positioned between the turbine and the impeller.
111	The turbo-charger bearing is lubricated and cooled by:	Its own internal self contained oil system.	The engine oil.	A total loss system.	A tapping in the scavenge oil system.
112	The automatic boost pressure control capsules are made sensitive to:	Atmospheric pressure.	Carburettor inlet pressure.	Boost pressure.	Cabin pressure differential.
113	Boost pressure is the:	Inlet manifold pressure in pounds per square inch above or below standard mean sea level pressure.	Absolute pressure in the inlet manifold measured in inches of mercury.	Absolute pressure in the inlet manifold measured in millibars.	Inlet manifold pressure in pounds per square inch above or below atmospheric pressure.
114	The purpose of an intercooler is:	To minimise the risk of detonation.	To increase the volume of the charge.	To decrease the density of the charge.	To prevent overheating of the exhaust manifold.
115	Air enters the compressor of a turbo-supercharger:	At the tip and passes across the impeller blades to exit at the eye.	At the diffuser and exits at the impeller.	At the eye and passes across the diffuser blades before exiting at the impeller tip.	At the eye and passes across the impeller blades to exit at the tip.
116	The waste gate is operated by:	The automatic boost control unit.	The waste gate actuator.	Inlet manifold pressure.	Exhaust gas temperature.
117	A high performance supercharger may require an intercooler to be placed:	Between the supercharger and the inlet valve.	At the carburettor intake.	Between each cylinder.	Between the engine block and the exhaust manifold.
118	A turbo-charger's rotational speed is determined by:	Throttling the exhaust inlet to the turbine.	The position of the throttle valve.	The density of the air at the compressor intake.	Bleeding off excess exhaust pressure.
119	Maximum Continuous Power (M.C.P) is:	Unrestricted, but only if economical cruising power is set.	The maximum power the engine will give at any time.	Given a 5 minute limitation.	Unrestricted.
120	The type of fuel used in a turbo-charged engine would be:	AVTUR.	AVGAS.	AVTAG.	AVPIN.
121	When the air or the mixture passes through the diffuser shroud, the energy conversion is from:	Kinetic to pressure.	Heat to potential.	Mechanical to heat.	Potential to kinetic.

122	The waste gate fitted to a turbo-charger regulates the quantity of:	The mixture that enters the induction manifold.	The atmosphere that can enter the compressor.	The exhaust gas that will by-pass the turbine.	The exhaust gas that leaves the compressor.
123	The response of a turbo-charged engine to rapid throttle opening, when compared to a normally aspirated engine:	Is initially better, but exhaust back pressure will cause a flat spot.	Is always better.	Is worse.	Is identical.
124	An internal supercharger is one which:	Is driven by exhaust gases.	Compresses the air.	Compresses the exhaust gases.	Compresses the mixture.
125	To prevent large acceleration loads on the compressor and the drive shaft of an internal supercharger, it is usual to:	Prohibit "slam" acceleration.	Incorporate a spring drive mechanism in the driving gears.	Rely on the inertia absorbing qualities of the exhaust gases.	Use a Vernier drive coupling.
126	Maintaining a constant manifold pressure in a turbo-charged engine during the climb will cause:	The exhaust gas temperature to decrease due to a decrease in exhaust back pressure.	The waste gate to open.	The waste gate to progressively close.	The diffuser rotational speed to increase.
127	A turbo-charger which is designed to maintain sea level pressure at altitude is termed:	An altitude-boosted turbo-charger.	A turbo-supercharger.	An internal supercharger.	A ground boosted turbo-charger.
128	"static Boost" is the manifold pressure indicated on the boost pressure gauge when:	The engine is stopped.	The engine is running at the manufacturer's recommended idle speed.	The engine is running at its rated power.	The manifold gauge needle is opposite the lubber line.
129	The rotational speed of a turbo-charger is dependant upon:	Engine R.P.M. and waste gate position.	Engine R.P.M. only.	Throttle position only.	Propeller pitch and altitude.
130	The type of compressor normally used in a supercharger is:	An axial compressor.	A Rootes compressor.	A centrifugal compressor.	A reciprocating thrunge compressor.
131	The position of the waste gate in a turbo-charged engine is:	In the inlet manifold.	Downstream of the turbine.	In parallel with the turbine.	In parallel with the compressor.
132	The compressor output of a turbo-charger unit is:	The same as the manifold pressure.	Greater than the manifold pressure.	sometimes greater, sometimes less than the manifold pressure.	Less than manifold pressure.
133	The type of compressor normally fitted to turbo-chargers and superchargers would compress the air:	Axially.	Co-axially.	In the diffuser only.	Centrifugally.
134	To maintain the Rated Boost of a supercharged engine while reducing the R.P.M :	The throttle valve must be opened.	The waste gate must be closed.	The waste gate must be opened.	The throttle valve must be closed.
135	The Automatic Boost Control Unit	The Boost Control Lever.	The waste gate.	The throttle butterfly.	The R.P.M. gauge and the

	operates:				manifold pressure gauge.
136	With an increase of compressor discharge pressure, the fuel flow will:	Decrease.	Remain constant.	Initially increase, but subsequently decrease.	Increase.
137	The boost pressure of a turbo-charged engine is controlled by:	Adjusting the throttle position.	Varying the speed of the turbo-charger.	The A.B.C.	Changing engine R.P.M.
138	The thrust horse power is related to forward speed as:-	THP = (ThrustxMPH)/350	THP = (ThrustxMPH)/375	THP = (ThrustxMPH)/550	THP = (ThrustxMPH)/750
139	Prior to starting a piston aero engine (in line inverted) and after ensuring that the ignition is "OFF", which check may have to be carried out?	Check that the pilot's flying licence is still in-date.	No further checks are necessary.	Obtain start-up permission from the Tower.	Carry out a check for engine hydraulicing.
140	Immediately an engine has started up, what is the first instrument reading to be checked?	Oil pressure.	Battery volts.	Gyro erection.	Vacuum.
141	should over-priming cause a fire to start in the engine's carburettor during starting, what is the best immediate action?	Evacuate the aircraft and make a "flash" call to the airport fire services.	shut down the engine. The fire will extinguish itself.	Keep the engine turning on the starter motor and select "idle cut-off'. The fire should be drawn through the engine.	select weak mixture on the mixture control and rapidly increase RPM.
142	When is "static Boost" noted?	Before engine start.	Just after engine start, while warming up.	It is permanently marked on the boost gauge.	It must be calculated from the airfield QNH.
143	If, during a "Mag drop" check the engine cuts, what action must be taken?	Immediately switch to "Both" and recheck.	select the other magneto, increase RPM to burn off the plug fouling and recheck.	The engine must be stopped.	Decrease RPM to idle for no more than 1 minute. Reselect reference RPM and recheck.
144	What are the main reasons to exercise a propeller from fine to coarse pitch after warm-up?	In order that a pilot may practise propeller control technique before take-off.	To pre-set the feathering signal before take-off, in case of an emergency.	To check that a full range of control is available at take-off boost.	To replace the cold oil in the pitch change mechanism and check RPM control.
145	Why, when climbing, is the engine temperature monitored carefully?	A low temperature will be the only sign that pre-ignition is occurring.	Decreasing air density will reduce the engine cooling system's efficiency.	A low engine temperature can give rise to poor atomization of fuel, and thus adversely	Use of high power at relatively low speed can allow engine temperature to creep up.
146	What is the main danger from using a	Low cylinder head	Low fuel pressure.	Pre-ignition.	Detonation.

	weak mixture at a high power setting?	temperature.			
147	What problem is prevented by the use of the correct running down procedure?	spark plug fouling.	Oil cooler coring.	Very high rate of piston ring wear.	Over high temperatures on next start-up.
148	What are the two main symptoms of an excessively rich mixture?	Loss of power and a drop in cylinder head temperature.	Gain in power and a drop in cylinder head temperature.	Loss of power and a rise in cylinder head temperature.	Gain in power and a rise in cylinder head temperature.
149	Select the correct order of best propulsive efficiency, from low to high airspeed	High by-pass ratio turbo jet, Low by-pass ratio turbojet, Pure turbojet, Turbo-prop.	Low by-pass ratio turbojet, Pure turbojet, Turbo-prop, High by-pass ratio turbojet.	Pure turbojet, Turbo-prop, High by-pass ratio turbojet, Low by-pass ratio turbojet.	Turbo-prop, High by-pass ratio turbojet, Low by-pass ratio turbojet, Pure turbo jet.
150	In a turbo-fan engine, the fan speed is controlled by:	A reduction gear.	A waste gate.	The turbine.	Varying the pitch.
151	Modular construction:	Is only used on turbo-prop engines.	Cannot be used on high ratio engines.	Has a weight saving function.	Enables malfunctioning sections of the engine to be changed without changing the whole engine.
152	On a cold day, the idle speed of a gas turbine engine which has no fuel control unit compensation:	Is unaffected by temperature.	Will increase.	Will decrease.	Will increase by no more than 4%.
153	The Gas Turbine Engine uses the principle of:	Newton's Third Law of motion.	Creating thrust equal to the weight of the aircraft.	Expelling air at the same speed as that of the aircraft.	The fluid flywheel.
154	In a divergent duct:	The pressure decreases and the temperature and velocity increases.	The pressure, velocity and temperature increases.	The pressure temperature increases and the velocity decreases.	The pressure decreases, the temperature increases and the velocity remains constant.
155	A By-Pass Ratio of 5:1 means that:	5 pounds of air is by-passed for every 10 pounds entering the engine intake.	5 pounds of goes through the H.P. compressor for every 10 pounds that enters the intake.	10 pounds of air goes through the by-pass for every 5 pounds that enters the intake.	5 pounds of air is by-passed for every 1 pound that goes through the hot core of the engine.
156	The fan in a ducted fan engine, is driven by:	The high pressure turbine.	The rearmost turbine.	The intermediate pressure turbine.	All of the above.
157	The majority of the thrust of a:	Turbo-fan engine comes from the turbine exhaust.	Turbo-prop engine comes from the turbine exhaust.	Turbo-shaft engine comes from the free power turbine	Turbo-fan engine comes from the by-pass air.

				exhaust.	
158	During the Brayton cycle, combustion takes place:	Continuously.	Once every revolution.	Once every other revolution.	Only during the start cycle.
159	Thrust produced by a turbine engine:	increase with temperature and decrease with pressure	increase with temperature and also increase with pressure	decrease with temperature and decrease with pressure	decrease with temperature and also increase with pressure
160	The purpose of the holes in the combustion chamber is to :	allow secondary cooling air for mixing	allow the primary cooling air for initial ignition	to propagate the flame from one can to other	both (a) and b) are correct
161	The thrust of an engine is increased by injecting water/methanol because:-	water decreases air density	water increases air density	alcohol increases freezing point	alcohol decreases freezing point
162	In a high by-pass engine with a `pitot' intake, with the engine running and the brakes on, what will P1 be in relation to PO?	same	greater	less	14.7psi
163	What effect will severe icing in the intake have on a high by-pass engine?	The axial velocity of the air will increase with a reduction in the angle of attack of the airflow with the compressor blades and a possible stall.	The axial velocity of the air will decrease with a reduction in the angle of attack of the airflow with the compressor blades and a possible stall.	The axial velocity of the air will decrease with an increase in the angle that the resultant airflow forms with the compressor blades chord line and a possible stall.	The axial velocity of the air will increase with an increase in the angle of attack of the airflow with the compressor blades and a possible stall.
164	Which of the following would be classed as prudent when carrying out Engine Ground Runs?	Only carry out engine runs with a tail wind	Fit debris guards when running	Only do ground runs on Tarmac	Only do ground runs on concrete
165	Secondary air inlet doors are utilised:	When an aircraft is in the cruise	When the aircraft is near its maximum IAS.	When the rpm of the engine is low while stationary.	When the rpm of the engine is high when stationary.
166	The purpose of an air inlet is to provide a relatively supply of air to the of the compressor	turbulent free face low pressure	turbulent face low pressure	turbulent free rear low pressure	turbulent free face high pressure
167	The effect on EPR with an iced up P1 probe with the RPM of the engine increasing	EPR would decrease.	No change.	EPR would momentarily decrease then increase.	EPR would increase.
168	The compressor idling speed of a gas	At higher ambient	With higher than sea	At altitudes lower	At lower ambient

	turbine engine will increase:	temperature.	level density.	than sea level.	temperature.
169	The pressure rise across each stage of an axial flow compressor is:	Greater than that of a centrifugal compressor.	Between 3 and 5 to one.	Twice the inlet pressure.	Between 1.1 and 1.2 to one.
170	As air passes through an axial flow compressor, a pressure rise takes place in:	The impeller and the diffuser.	The rotor blades only.	Both the rotor blades and the stator vanes.	The stator vanes only.
171	Shrouding of stator blade tips is designed to:	Prevent tip turbulence.	Ensure adequate cooling.	Minimise vibration.	Prevent tip losses.
172	The attachment of blades to the compressor disc:	Allows slight movement to relieve stress concentration.	Is rigid.	Prevents them being contaminated by the atmosphere.	Allows slight movement because of the different expansion rates of the blades and the disc which would otherwise cause center line closure.
173	A compressor blade will stall when:	The air axial velocity and rotational speed relationship is disturbed.	The mass air flow and speed relationship is constant.	The speed of the gas flow through the turbine falls below 0.4 Mach.	The compression ratio exceeds 10 to 1.
174	Cascade vanes are fitted in which part of the centrifugal compressor?	The air inlet	The outlet elbow	The impeller	The diffuser
175	The pressure rise across a centrifugal compressor:	Occurs in the impeller only.	Occurs in the diffuser only.	Is shared almost equally by the impeller and the diffuser.	Is always greater in the diffuser than in the impeller.
176	The major disadvantage of a centrifugal compressor is that:	It cannot cope with a large mass flow of air.	It cannot be used for a turbojet engine.	A larger turbine must be used.	It is more prone to damage than the axial flow compressor
177	The type of compressor used to create radial airflow would be:	Positive displacement.	Axial.	Centrifugal.	Constant volume.
178	An advantage of a centrifugal compressor is that it is:	Dynamically balanced.	More robust and is easier to develop and manufacture.	Unaffected by turbulence.	Able to handle a larger mass of air than an axial flow compressor.
179	Air passing through a convergent duct experiences:	A decrease in temperature and pressure with an increase in velocity.	An increase in temperature and velocity with a decrease in pressure.	An increase in temperature and pressure with a velocity decrease.	Adiabatic expansion.
180	A compressor stall:	Is overcome by increasing the fuel flow.	Is a complete breakdown of the	May only affect one stage or several stages	Is mechanical failure of the compressor.

			airflow through the compressor.	of a compressor.	
181	The occurrence of compressor stalls is limited by:	Bleed valves.	Nozzle guide vanes.	Swirl vanes.	Cascade vanes.
182	To prevent compressor stall at the rear of the compressor, bleed valves must be positioned:	At the rear stages of the compressor.	At the front stages of the compressor.	At the mid stages of the compressor.	At the intake of the engine.
183	One indication that a compressor bleed valve has stuck closed at low R P M is:	Possible compressor stall.	An inability to achieve full power.	That bleed air is reduced.	That the engine will stop.
184	Bleeding compressor air for anti-icing will cause:	An increase in T.G.T., a decrease in thrust and an increase in S.F.C.	A decrease in T.G.T., an increase in thrust and a decrease in S.F.C.	An increase in R.P.M. and fuel flow.	An increase in R.P.M. and a decrease in fuel flow.
185	Compressor blades are twisted from root to tip:	To decrease the pressure.	To maintain a correct angle of attack.	To reduce the relative airflow.	To give added rigidity to the blade structure.
186	A stall in a gas turbine engine is most likely to occur with :Pressure Ratio Location in Compressor	High Front	High Back	Low Back	Low Front
187	The low pressure compressor of a high ratio by-pass engine:	Is driven by the high pressure turbine.	Rotates faster than the high-pressure compressor.	Is always a centrifugal compressor.	Is driven by the rearmost turbine.
188	The pressure energy of air flow through a gas turbine engine will be:-	converted to kinetic energy at nozzle guide vanes	converted to heat energy at nozzle guide vanes	unchanged at nozzle guide vanes	increased at nozzle guide vanes
189	The disadvantage of an axial flow compressor is:-	high Starting power is required	less expensive and complex	light weight	large frontal area
190	The purpose of the inlet guide vanes in front of the compressor is :-	to increase the pressure of the gases before entering the compressor	to circulate hot air through IGV to prevent ice formation	to increase the pressure of the gases and direct it to the face of the compressor.	none of the above is correct
191	The principle of operation of a compressor of turbine engine is:-	decreasing, incoming air velocity to increase	imparting KE to the incoming air then change to pressure energy	imparting KE of incoming air	all the above are correct
192	One advantage of an annular combustion chamber system is that:	The diameter of the engine is reduced.	There is unrestricted airflow at maximum r.p.m.	There are no flame propagation problems.	The air casing area is greater.
193	The combustion chamber drain valve is	By combustion chamber gas	By a return spring.	By 12th stage	During a blow out cycle.

	closed:	pressure.		compressor air pressure.	
194	It is necessary to have a combustion drain system:	To prevent pressure build up in the combustion chamber.	To allow moisture content in the fuel to drain away.	To allow any unburnt fuel to drain after shut down or a wet start.	To prevent the igniters becoming wetted by excess fuel.
195	A re-light envelope:	Shows the flame stability limits.	Shows airspeed and altitude limitations for an in-flight restart.	Shows fuel / air mixture limitations for an in-flight restart.	Contains the in flight re-start igniter plugs.
196	The air entering the combustion chamber is divided; a small percentage is used in combustion, the rest:	Is syphoned off for airframe anti-icing purposes.	Is used only for cooling the gases before they exit the combustion chamber.	Is used to reduce the oil temperature and cool the turbine blades.	Is used to cool both the gases exiting the chamber and the walls of the air casing.
197	One of the following statement is not true for requirement of the combustion chamber :-	carbon formation must be kept to a minimum	there must be minimum loss of temperature and pressure throughout the chamber	all air passing through the take part in combustion	there must be high combustion efficiency
198	At an idle or low power condition, the turbo-charger waste gate is normally:	Partially open.	Fully open.	Closed.	Half open.
199	The term "Indicated Mean Effective Pressure" refers to: 10	The maximum working pressure in the engine cylinder.	The effective working pressure in the cylinder during the power stroke.	The pressure achieved during compression.	The minimum working pressure applied to the piston during the cycle.
200	The degrees of rotation to complete a full cycle on a nine cylinder engine will be: 11	180	360	720	80
201	The principle of operation of fire wire is	Positive coefficient of impedance, negative coefficient of inductance	Positive coefficient of resistance, negative coefficient of capacitance	Positive coefficient of inductance, negative coefficient of impedance	Positive coefficient of capacitance, negative coefficient of resistance
202	What type of fire extinguisher would be used on a propane fire	foam	water	dry powder	sand
203	On what principle do smoke detectors work	Resistance and capacitance	Ionisation and impedance	Optical and ionisation	Inductance and light diffraction
204	An ion detector detects	smoke and fire	smoke	overheat	light
205	If an artificial feel unit is fitted it would be connected	In parallel with the primary controls	In series with the primary controls	In series with the secondary controls	In parallel with the secondary controls

206	In a twin jet fuel system what is the function of a feeder box	Equally distribute the fuel to each tank during refueling	Prevent pump cavitation	Feed fuel to the volumetric top-off unit	Control the amount of fuel remaining during fuel dumping
207	The fuel tanks of a modern passenger airliner are filled by	Gravity	Fuel is sucked in by the aircraft pumps	Fuel is pumped in by the fuel truck	The VTO system
208	The purpose of a refueling volumetric top off unit (VTO) is:	To keep the feeder box full of fuel at all times	To close the fuelling valve when the tank is full	To close the surge check valves in the outboard tanks to keep the tank full until the centre tank fuel has been used	To close the tank vent system when the tank is full
209	Fuel tank booster pumps are: -	Spur gear pumps - high pressure	Centrifugal pumps - high pressure	Spur gear pumps - low pressure	Centrifugal pumps - Low pressure
210	The advantage of a float type fuel gauging system is	Reads fuel quantity by mass & Compensates for change of aircraft attitude	Compensates for variations of SG & Reads fuel quantity by mass	Simple & measuring volume by varying resistance.	Simple & Reads fuel quantity by mass
211	A magneto is switched off by	Open circuiting the primary circuit	Grounding the secondary circuit	Open circuiting the secondary circuit	Grounding the primary circuit
212	EPR is measured by the ratio of	Turbine pressure to combustion chamber inlet pressure	High pressure compressor inlet pressure to exhaust pressure	Low pressure compressor inlet pressure to high pressure compressor outlet pressure	exhaust pressure to low pressure compressor inlet pressure
213	In a bootstrap air conditioning system what is the first thing the air does?	goes through the primary heat exchanger, turbine and compressor	goes through the compressor, turbine, secondary heat exchanger	goes through the turbine, compressor and secondary heat exchanger	goes through the compressor, secondary heat exchanger, turbine
214	How are the loads on an aircraft busbar connected	are in series so that current reduces through the busbar as loads are switched off	are in parallel so that voltage reduces through the busbar as loads are switched off	are in parallel so that current reduces through the busbar as loads are switched off	are in series so that voltage reduces through the busbar as loads are switched off
215	How are escape slides inflated	Fed from bleed air system	Self contained gas bottle	Hand pumped by cabin crew	Using the oral inflation adaptor
216	If a aircraft has a maximum seating configuration of less than 200 but more than 9 a crash axe or crowbar must be carried	One on the flight deck only	One on the flight deck and one in the passenger cabin	Two on the flight deck and one in the fwd cargo hold	One on the flight deck and two in the passenger cabin

217	In a centrifugal compressor	The air enters the eye tangentially and leaves the periphery axially	The air enters the periphery axially and leaves the eye tangentially	The air enters the eye radially and leaves the tip tangentially	The air enters the impeller axially at the eye and leaves at the periphery tangentially.
218	The type of smoke detection system fitted to aircraft is	optical and ionisation	chemical	electrical	magnetic
219	Hydraulic reservoirs are pressurised by	Ram air in flight only	Separate helium gas system	Air from Pneumatic system or bleed air supply system	Engine bleed air from turbine engine
220	The purpose of a hydraulic fuse is to	allow the parking brake to remain on overnight if required	allow a reduced pressure to the wheel brake system to avoid locking the wheels	prevent over-pressurising the reservoir as altitude increases	prevent loss of system fluid if the pipeline to a brake unit should rupture
221	In the event that an emergency decent causes the cabin pressure to decrease below ambient pressure	The outward relief valve will open	The outflow valve will close	The inward relief valve will open	The safety valve will close
222	In a bleed air anti icing system the areas that are heated are	the whole of the wing	wing leading edge slats and flaps	wing leading edges and slats	trailing edge flaps
223	If an aircraft maximum operating altitude is limited by the pressure cabin, this limit is due to	The maximum positive pressure differential at maximum operating ceiling	The maximum positive pressure differential at maximum cabin altitude	The maximum number of pressurisation cycles	The maximum zero fuel mass at maximum pressure altitude
224	An underinflated tyre on a dry runway	Increases wear on the shoulder	Increases wear on the crown	Increases viscous aquaplaning speed	Will cause the tyre temperature to reduce
225	Kreuger flaps are positioned	Towards the wing tip	At the wing inner leading edge	Along the whole leading edge	At the wing trailing edge
226	What are flaperons	Combined spoiler and flap	Combined elevators and flaps	Combined ailerons and elevators	Combined flap and ailerons
227	What is the purpose of inboard ailerons	To reduce wing bending at high speed	To reduce wing twist at high speed	To reduce wing bending at low speed	Both `a' `b' are correct
228	What is the purpose of trim tabs	To reduce stick forces in manoeuvres	To reduce stick holding forces to zero	To increase control effectiveness	To reduce control effectiveness
229	Smoke hoods protect	full face and provide a continuous flow of oxygen	mouth and nose and provide a continuous flow of oxygen	full face and provide oxygen on demand	mouth and nose and provide oxygen on demand
230	oxygen supplied to the flight deck is	Gaseous, diluted with ambient air if required	Chemically generated and diluted with cabin	Gaseous, diluted with cabin /cockpit air	Chemically generated, diluted with ambient air

			air if required	if required	if required
231	If during pressurised flight the outflow valve closes fully due to a fault in the pressure controller the:	Skin will be overstressed and could rupture.	Safety valve opens when the differential pressure reaches structural max diff	The inward relief valve will open to prevent excessive negative differential.	ECS packs are automatically closed down.
232	In a fan jet engine the bypass ratio is	internal mass airflow divided by external mass airflow	external mass airflow divided by internal mass airflow	internal mass airflow divided by mass fuel flow	mass fuel flow divided by mass fuel flow
233	The thrust reverser light illuminates on the flight deck annunciator when the	Thrust reverser doors have moved to the reverse thrust position	Thrust reverser doors have been selected but the doors haven't moved	Thrust reverser doors are locked	Thrust reverser doors are unlocked
234	In a four stroke engine, when the piston is at BDC at the end of the power stroke the position of the valves is Inlet Exhaust	Closed Closed	Open Open	Open Closed	Closed Open
235	What is the effect on EGT and EPR if a bleed valve is opened	Increase, increase	Decrease, decrease	Decrease, increase	Increase, decrease
236	In a modern turbofan engine - where is fuel flow measured ?	In the Fuel tank	In LP fuel supply system of Engine	In HP fuel supply system of Engine	Both b and c are correct
237	Where is torque measured in a turboprop engine	Accessory gearbox	Reduction gearbox	At the turbine	At the constant speed unit oil pump
238	Propeller blade angle is	The angle between the blade chord and the plane of rotation	The angle between the relative airflow and the chord	Dependent upon RPM and TAS	The difference between effective pitch and geometric pitch
239	Why is a propeller blade twisted	To reduce the thrust at the root of the blade	To prevent the blade from fully feathering	To reduce the tip speed	To even out the thrust force along the length of the blade
240	For calculating resistances in parallel the formula is	1/RT = 1/R1 + 1/R2 - 1/R3	RT =R1 +R2 +R3	RT = R1xR2xR3	1/RT = 1/R1 + 1/R2 + 1/R3
241	A hot busbar is one that	Supplies galley power	Is permanently connected to the battery	Carries all of the non essential loads	Is connected to the battery in an emergency
242	In an AC distribution system what is the purpose of the GCB	Maintains constant frequency	Connects the load busbar to the synchronizing busbar	Controls generator field excitation	Connects a generator output to its load busbar
243	An aircraft which uses DC as the primary source of power, AC for the instruments	CSDU	rectifier	Inverter	TRU

	may be obtained from:				
244	The state of charge of an aircraft battery on an aircraft with a voltmeter would be checked	On load	Off load	With the battery negative terminal disconnected	By monitoring the electrolyte resistance
245	In a paralleled AC distribution system what regulates the real load	Torque from the CSDU (CSD)	Field excitation from the voltage regulator	Synchronising circuits in the BTB	A potentiometer on the Flight Engineers panel
246	If the oil temperature gauge of the CSD is in the red what would action is required	Throttle back and allow to cool down	Auto disconnect	Manually disconnect and reconnect on the ground	Disconnect, then when cooled reconnect
247	What is a transistorised static inverter in a DC circuit used for	Convert AC to DC	Provide field excitation current	Provide AC for instruments	To supply power to the emergency lights
248	Incorrect bonding of the aircraft structure could cause	Corrosion at skin joints	CB trips	Static on the radio	VOR interference
249	The frequency of an AC generator is dependent upon	The RPM of the rotor	The number of poles in the rotor	The RPM and number of poles in the rotor	The number of poles in the rotor and the number of phase windings in the stator.
250	With an almost discharged battery there will be:	a decrease of voltage with increasing load	increase of current with decrease of voltage	decrease of current with increasing load	increase of voltage with increasing load
251	When is an engine overheat firewire system activated	When an overheat is detected all along the length of both firewire loops	When an overheat affects one detector loop at a point anywhere along its length	When an overheat is detected all along the length of one firewire loop	When an overheat affects both detector loops at a point anywhere along their length.
252	In an air cycle air conditioning system what is the function of the ground-cooling fan	To re-circulate air through the mix manifold	To draw cooling air over the turbine	To blow air into the compressor	To draw cooling air over the heat exchangers
253	How do you control power in a jet engine	By controlling the mixture ratio	By controlling the fuel flow	By controlling the airflow	By controlling the bleed valves
254	In a normally aspirated piston engine carburettor icing can occur:	Between 0°C and -10°C	At more than + 10°C	Only at less than + 10°C if there is visible moisture	Only above 5000 ft
255	In a gas turbine engine fuel system why is the fuel heater before the filter	To prevent `waxing'	To help vaporization of the fuel	To prevent water in the fuel freezing and blocking the filter	To prevent the fuel from freezing and blocking the filter
256	What is the purpose of the FCOC (Fuel Cooled Oil Cooler)	To maintain the oil at the correct temperature	To heat the fuel and cool the oil	To heat the oil and cool the fuel	To by-pass oil to the engine if the oil pressure

					filter becomes blocked
257	What is the purpose of the torque links in a landing gear leg	To prevent the wheel rotating around the leg	To prevent shimmy	To transfer the brake torque to the wheel	To position the wheels in the correct attitude prior to landing
258	An artificial feel system is needed in the pitch channel if	Airplane has a variable incidence tailplane	Elevators are controlled through a reversible servo system	Elevator is controlled through a servo tab	Elevators are controlled through an irreversible servo system
259	Auto brakes are disengaged :	When the ground spoilers are retracted	When the speed falls below 20 kts	On the landing roll when the autopilot is disengaged	By the pilot
260	A likely cause of nose wheel shimmy is:	aircraft is overweight	the tyre pressures are too high	the aircraft is incorrectly loaded	a torque link is worn or damaged.
261	In an aircraft with a fuel dunping system it will allow fuel to be dumped	Down to a predetermined safe valve	Down to unusable value	To leave 15 gallons in each tank	Down to maximum landing weight
262	What does 'octane rating' when applied to AVGAS refer to –	The waxing point of the fuel	The ability of the fuel to disperse water	The anti-knock value of the fuel	The volatility of the fuel
263	How are modern passenger jet aircraft fuel tanks pressurized	By nitrogen from a storage cylinder	By ram air through the vent system	By bleed air from the pneumatic system	By a volumetric top off unit
264	Fuel tank vent system is installed to:	pressurize the fuel tank	remove the fuel vapour	equalize the tank Pressure with ambient	both (b) and (c) are correct
265	In which of the following areas would an overheat/fire warning be provided	Fuel tank	Cabin	Tyres	Wheel/Undercarriage bay
266	An axial flow compressor when compared to a centrifugal compressor	Takes in less air and is less prone to rupturing	Takes in more air and is more prone to rupturing	Takes in more air and is less prone to rupturing	Takes in less air and is more prone to rupturing
267	Hydraulic pressure typically used in the system of large transport aircraft is	2000 - 3000psi	3000 - 4000psi	1000 - 2000psi	4000 - 5000psi
268	The EGT indication on a piston engine is used	To control the cooling air shutters	To monitor the oil temperature	To assist the pilot to adjust the fuel mixture	To indicate cylinder head temperature
269	A gas turbine engine having a single spool, the compressor will rotate:	At the same speed as the turbine	Slower than the turbine	Faster than the turbine	Independently of the turbine
270	Because of its function an `AND' gate may also be referred to as:	Invert or not gate	Any or all gate	All or nothing gate	Either or gate
271	What type of hydraulic fluid is used in a modern passenger jet aircraft	Mineral based	Phosphate ester based	Vegetable based	Water based
272	In a 4 stroke engine when does ignition occur in each cylinder	After TDC for starting and then before TDC every 2nd	Before TDC for starting and then after	After TDC for starting and then before TDC	Before TDC for starting and then after TDC every

		rotation of the crankshaft	TDC every 2nd rotation of the crankshaft	every rotation of the crankshaft	rotation of the crankshaft
273	When smoke appears in the cockpit, after donning the oxygen mask the pilot should select	Normal	1	Diluter	Emergency
274	Which part of the gas turbine engine limits the temperature	Combustion chamber	Turbine	Compressor	Exhaust
275	What makes the non-rigid fittings of compressor and turbine blades rigid when the engine is running	Spring locks	Thrust and drag forces	Aerodynamic and Centrifugal force	Tapered bead seats
276	What ice protection system is used on most modern jet transport aircraft	Liquid	Electrical	Hot air	Pressure operated boots
277	What frequency is commonly used in aircraft electrical distribution systems	200Hz	400 Hz	100Hz	50Hz
278	When does the engine High Pressure fuel shut off valve close	After a booster pump failure	When the engine fuel switch is selected `on' during engine start	When flight idle is selected	When the engine fuel switch is selected `off during engine shut-down
279	When does the Low Pressure fuel shut off valve close	When the fire handle is pulled	When the engine fuel switch is selected `on' during engine start	When flight idle is selected	After a booster pump failure
280	In a vapour cycle cooling system what is the purpose of the condenser	To remove moisture from the air by centrifugal action	To convert the refrigerant from a liquid to a gas	To convert the refrigerant from a gas to a liquid	To raise the pressure of the gas to allow efficient cooling
281	What voltage is supplied to booster pumps on a modern jet airliner	115v AC single phase	200v AC three phase	28v DC froth an inverter	12v DC frorn the battery
282	An engine having a `Free turbine'	There is a mechanical connection between the power output shaft and the turbine	There is no mechanical connection between the power output shaft and the turbine	There is a mechanical connection between the compressor and the propeller shaft	Air enters via compressor inlet on the turbine
283	If the pressure controller malfunctions during the cruise and the outflow valve opens what happens:	Cabin ROC Increase, Cabin Alt Decrease, Differential pressure Decrease	Cabin ROC Decrease, Cabin Alt Increase, Differential pressure Decrease	Cabin ROC Increase, Cabin Alt Increase, Differential pressure Decrease	Cabin ROC Increase, Cabin Alt Increase, Differential pressure Increase
284	What controls cabin pressurization	ECS pack mass flow controller	Outflow valve	Engine bleed valve	Inflow valve
285	If the fire handle is pulled in an aeroplane with an AC generator system what	Exciter control relay and GCB	GCB and BTB	BTB and GCU	Exciter control relay only

	disconnects.				
286	Which components constitute a crank assembly	Crankshaft, camshaft, valve springs	Crankcase, crankshaft, pistons and connecting rods	Crankshaft, pistons and connecting rods	Propeller, crankshaft, connecting rods
287	One stage of an axial compressor	Comprises a row of stators followed by a rotor disc	Has a compression ratio of 2:1	Comprises a rotor disc followed by a row of stators	Has a compression ratio of 0.8
288	If a CSD overheat warning is shown	The CSD can be disconnected and the pilot must control the alternator himself	The pilot must throttle back to reduce the load on the alternator	The CSD can be disconnected then reconnected later when the temperature has reduced	The CSD can be disconnected but not used for the rest of the flight
289	A new tyre with wear on the tread and parallel grooves	Can be repaired once only	Can be repaired several times	Can never be repaired	is fit for use only on a nose-wheel
290	An emergency exit assisted escape device must be fitted if the door sill height is above:	8ft with the aircraft on the landing gear with the nosewheel extended	8ft with the aircraft on the landing gear with the nosewheel collapsed	6ft with the aircraft on the landing gear with the nosewheel extended	6ft with the aircraft on the landing gear with the nosewheel collapsed
291	In a compensated capacitance fuel contents system what happens to a fuel weight of 80001bs if its volume increases by 5%	decreases by 5%	increases by 5%	remains the same	increases by 5% for every degree rise in temperature
292	How do aircraft spoilers work	lower surfaces only, symmetrical and asymmetrical operation	lower surfaces only, symmetrical operation	upper surfaces only, symmetrical and asymmetrical operation	upper surfaces only, symmetrical operation
293	What is the total volume in the cylinder of a four stroke engine	A value equal to the cubic capacity	swept volume minus clearance volume	volume between TDC and BDC	swept volume plus clearance volume
294	After the power stroke on a piston engine the poppet valve sequence is	exhaust valve opens, inlet valve opens, exhaust valve closes	exhaust valve closes, inlet valve opens, exhaust valve opens	inlet valve opens, exhaust valve closes, inlet valve closes	inlet valve closes, exhaust valve closes, inlet valve opens
295	What speed does the LP compressor run at ?	the speed of the LP turbine	the speed of the HP turbine	half the engine speed	constant speed
296	What happens to the angle of attack of a fixed pitch propeller as the aircraft accelerates down the runway	increases	decreases	remains the same	blade angle changes to compensate for forward speed
297	What happens to the AoA of a VP	blade angle remains	increases	decreases	remains the same

	propeller with increasing TAS if the RPM and throttle levers are not moved	constant to compensate for forward speed			
298	What colour is the hydraulic liquid in a modern jet airliner ?	Purple	Red	Yellow	Pink
299	On what principle does a fuel flow meter work	Volume and viscosity	Quantity of movement	Capacitive dielectric	Pressure and temperature
300	On what principle does the fuel contents gauging system work on a modern large aircraft ?	Capacity affected by dielectric therefore changing EMF of system	Capacity affected by dielectric therefore changing resistivity of system	Changes in dielectric causes changes in capacitance	Change in dielectric causes change in distance between plates and therefore changes capacitance
301	What would happen if the waste gate of a turbocharged engine seized in the descent?	Compressor will overspeed	Blow the turbine blades off	MAP may exceed its maximum permitted value in the induction manifold	RPM may exceed its maximum permitted value
302	When is spark plug fouling most likely to occur?	In the climb if you have not adjusted the mixture	Cruise power	In the descent if you have not adjusted the mixture	Max take-off power
303	What is a ram air turbine (RAT) which drives a hydraulic pump used for?	Nose wheel steering	Flap extension	Landing gear extension if the normal system fails	Flight controls in case of failure of the engine driven system
304	What is the purpose of the diluter demand valve in the emergency oxygen system ?	To supply air only when inhaling	To dilute oxygen with air in crew oxygen system	To dilute oxygen with air in passenger oxygen system	To supply oxygen only when inhaling
305	What limits the max temperature in a gas turbine engine ?	Temperature in the combustion chamber	Temperature at the exhaust	Temperature at the turbine	Temperature entering the combustion chamber
306	An aircraft planning to fly at FL330 with 120 seats fitted and 42 passengers on board must provide first aid oxygen for:	At least one passenger for the duration of the flight above 8000ft.	No first aid oxygen is necessary	At least 3 passengers for the duration of the flight above 15000ft.	At least one passenger for the duration of the flight above 14000ft
307	The engine fire extinguisher system is activated:	After the engine has been shut down	Automatically when a fire warning is sensed	By the pilot when required	Automatically after a time delay to allow the engine to stop
308	An unpressurised aircraft is flying above FL 100 and therefore must have sufficient oxygen for:	Both pilots immediately and the cabin crew plus all passengers after 30 minutes above FL 100 but below FL 130	Both pilots only	Both Pilots and all passengers	Both pilots immediately and the cabin crew plus some passengers after 30 minutes above FL 100 but below FL 130
309	Aircraft above a certain capacity must	Cut through the aircraft	Enable access behind	Cut firewood in a	Restrain disorderly

	carry a crash axe, it is provided to	fuselage to allow escape	panels and soundproofing to aid fire fighting	survival situation	passengers
310	The function of stringers in the construction of the fuselage is:	To withstand shear stress	To provide an attachment for insulation	To provide support for the skin and to absorb some of the pressurization strain as tensile loading	To provide an alternate load path in the event of the failure of a frame.
311	The type of refrigerant used in a vapour cycle cooling system is	Argon	Freon	Helium	BCF
312	The requirement for an aircraft to have a fuel dumping system is:	All aircraft in the Transport Category having a maximum take off mass (MTOM) of 75000kg or greater	All aircraft manufactured after 1997 having a MTOM of 7500kg or more	Aircraft whose maximum landing mass (MLM) is significantly lower than its maximum take off mass (MTOM)	All aircraft with a seating capacity of 250 or more
313	A Volumetric Top-Off Unit (VTO) , is provided in a fuel system to	Vent the tank to atmosphere when its full	Allow a main feed tank to be maintained at a predetermine level automatically , while being fed from an auxiliary tank	Allow the main tank to automatically maintain a predetermined fuel pressure	Prevent too much fuel from being dumped
314	The precautions to be taken during refueling are	GPU may not be running during refueling	All earthing of aircraft parts to ground equipment must be completed before filler caps are removed	Passengers may be boarded (traversing the refueling zone)	No radar or HF radios under test within 10 metres
315	What prevents an impulse coupling operating at speeds above start speed , considering that it has flyweights	Electro-magnetic indication	Hydraulic clutch	Centrifugal force	On/Off switch
316	In a Bramah press one piston has an area of 0.5m² and has a force of 10 N acting on it. If the area of the second piston is 0.5m², what force will it produce	1N	20 N	25 N	100 N
317	What is the reason for putting the horizontal stabilizer on top of the fin	To be more efficient at high speed	No need for anti-icing	Create a pitch up by making the aeroplane tail heavy	To be out of the way of the wing down wash
318	Where are thermal plugs fitted	Wheel rim	cargo bay	fuel tank	oil tank

319	In a non-stressed skin aircraft, bending loads acting on the wings are taken by	skin	spars	stringers	ribs
320	In a stressed skin aircraft, bending loads acting on the wings are taken by	ribs and stringers	stringers and spars	spars and skin	spars and stringers
321	The demand valve of a diluter demand oxygen regulator in normal mode operates when	the pressure to the regulator is more than 500 psi	user breathes in	user requires 100% oxygen	diluter control is in the `normal' position
322	Torque links on an undercarriage come under most stress when	during crosswind landings	during pushback	making tight turns when taxying	after take-off
323	When opening an aircraft door from outside, what happens to the escape slide	inflates	deploys, but does not inflate	inflates, but stays inside its container	is disarmed
324	The temperature of hydraulic fluid is measured	after the cooler	in the reservoir	at the actuator	at the pumps
325	The magnetos are switched off and the engine continues to run normally. The cause of this fault is	a wire from the magneto coming in contact with the metal aircraft skin	hotspots existing in cylinder	carbon deposits on spark plug	grounding wire from magneto being broken
326	An aircraft is to fly at 29000ft When should the oxygen briefing take place	before 10000ft.	before 14000ft.	at 20000ft	before take-off
327	What is the purpose of the magneto impulse coupling	to give a retarded spark during starting	reduce the rate of rotation of the magneto	advance the ignition and give a hotter spark during starting	automatically increases spark rate at high engine speeds
328	The excess cabin altitude alerting system must operate to warn the crew at	8000ft	10000ft	13000ft	14000ft
329	A device in a hydraulic system which acts in the same way as a diode in an electrical circuit is a	restrictor valve	sequence valve	fuse	one way check valve
330	What does three green lights represent when the landing gear is selected down	the gear is down	the gear is down and locked	the gear and doors are down and locked	the gear is travelling between up and down
331	Which is the correct statement regarding a large aircraft fitted with both inboard and outboard ailerons	the outboard ailerons are used only when the landing gear is selected down	the outboard ailerons are used only when the landing gear is retracted	the inboard ailerons are used only when the flaps are retracted	the inboard ailerons are only used when the flaps are extended
332	What is the effect of heating flight deck windows	to demist the interior of the window if normal demist does not function correctly	to protect the windows against bird strike	to protect the windows against ice formation	to protect the windows against bird strike and ice formation
333	If an aircraft suffers a decompression what happens to the indications on a	VSI up, altimeter up, differential pressure gauge	VSI , altimeter, differential pressure	VSI down , altimeter up, differential	VSI up, altimeter down, differential pressure

	cabin VSI, cabin altimeter and differential pressure gauge	down	gauge all unchanged	pressure gauge down	gauge down
334	What happens if a gaseous oxygen cylinder is over pressurized	a pressure relief valve vents the excess pressure into the atmosphere	a bursting disc vents the complete contents of the cylinder(s) to atmosphere	a pressure regulator will prevent the excess pressure damaging the system	a pressure relief valve vents the excess pressure into the fuselage
335	Fuel tanks accumulate moisture, the most practical way to limit this in an aircraft flown daily is to:	secure the filler cap tightly and plug the drains	drain the tank at the end of each day	fill the tank after each flight	drain the water before flight
336	An aircraft is in straight and level flight at a constant cabin altitude when the crew notice the rate of climb indicator reads - 200ft/min. What will be the sequence of events	crew should begin a climb to regain cabin altitude	cabin altitude will increase to outside atmospheric pressure	cabin altitude will descend to, and continue beyond normal max. diff, at which point the safety valves will open.	cabin altitude will increase to, and continue beyond normal max. diff, at which point the safety valves will open.
337	The angle formed between plane of rotation and relative airflow is called:-	angle of attack	angle of advance	pitch	blade angle
338	One of main difference between piston and gas turbine engine is :-	gas turbine engine is called constant volume engine	piston engine is called constant pressure engine	gas turbine engine is called constant pressure engine	piston engine is not suitable for aircraft operation
339	The jet engine operated by using a principle combustion without air is known as:-	pulse jet	ramjet	rocket	all above
340	In impulse turbine the gas velocity increases at:-	inlet guide vanes	turbine blades	nozzle guide vanes	both (b) and (c) are correct
341	The index of fire hazard of a gas turbine fuel is	flash point	vapour point	cloud point	viscosity
342	An after burner engine is basically a:-	rocket motor attached to the turbine exhaust case of a jet engine	pulse jet attached to the. turbine exhaust arise of a jet engine	ramj et attached to the turbine exhaust case of a j et engine	none of the above are correct
343	Single entrance long pitot duct is efficient for:-	better ram recovery	low bank angle	high speed aircraft	all of the above are correct
344	In a turbofan engine, the type of seals used for bearings are:-	non-contact seal	clearance seal	air seal	all of the above
345	A hot start could be the result of	greater fuel flow than the normal	TGT rise faster than normal	ignition system malfunctioning	Both a) and b) are correct
346	The advantage of a bypass engine over jet engine is:-	less fuel consumption	less frontal area	longer take off roll	less weight power ratio

347	Kreuger flaps are positioned on the	trailing edge	leading edge	outboard leading edge	inboard leading edge
348	The purpose of inboard ailerons is to reduce wing	bending at high speed	twisting at high speed	bending at low speed	twisting at low speed
349	Which is the correct statement regarding a large aircraft fitted with both inboard and outboard ailerons	the outboard ailerons are used only when the landing gear is selected down	the outboard ailerons are used only when the landing gear is retracted	only the inboard ailerons are used when the flaps are retracted	only the inboard ailerons are used when the flaps are extended
350	Why are two longitudinal trim switches fitted to the control column	there are two trim motors	fast trimming at low altitude and a slower rate at higher altitudes	as a safety precaution to reduce the possibility of trim runaway	to prevent both pilots operating the trim at the same time
351	A ram air turbine may be used to provide emergency hydraulic power for	landing gear extension	flight controls	nose wheel steering	leading edge flap extension only
352	An under inflated tyre on a dry runway	decreases viscous hydroplaning speed	causes the tyre temperature to fall	increases wear on the shoulder	increases wear on the crown
353	What is the purpose of the ground cooling fan in a boot strap air cycle conditioning system	to draw cooling air over the turbine	to draw cooling air over the heat exchangers	to blow air onto the compressor	to re-circulate air through the mixing manifold
354	If the outflow valves failed closed in flight the effect would be	to damage the aircraft skin	to increase cabin pressure to max differential	to increase cabin altitude	to shut down the air conditioning system
355	Where are the fuel heaters fitted on jet aircraft	in each tank	on the engine	they are not required	centre tank only
356	The areas that heated by a bleed air system on a modern jet passenger transport are	leading edges of all aerofoil surfaces	leading edges of all aerofoil surfaces including flaps	leading edges of all aerofoil surfaces including slats (where fitted)	upper surfaces of the wings only
357	Which one of the following ice protection systems can only be used as a de-icing system	mechanical	electrical	chemical	thermal
358	The stators of a three phase alternator are separated by	60 degrees	90 degrees	120 degrees	180 degrees
359	What is disconnected if the fire handle is pulled in an aircraft with an AC generator system	generator control relay (exciter control relay) and GCB	GCB	BTB	Generator control relay (exciter control relay) and BTB
360	A generator that produces 400Hz at 6000 rpm has how many pole pairs	12	8	6	4

361	In an aircraft which uses DC as the primary source of power, AC for the instruments may be obtained from	a rectifier	the AC busbar	a TRU	an inverter
362	The wavelength of a VOR is	metric	decimetric	hectometric	centimetric
363	Skip distance is longest by (1) ..... and with a (2) ..... frequency	day low	day high	night low	night high
364	The skip zone of an HF transmission will increase with	an increase in frequency and an increase in height of the reflective (refractive) layer	an increase in frequency and an decrease in height of the reflective (refractive) layer	an decrease in frequency and an increase in height of the reflective (refractive) layer	an decrease in frequency and a decrease in height of the reflective (refractive) layer
365	If AC generators are connected in parallel the reactive loads are balanced by adjusting the	frequency	torque of the CSDU	energising current	voltage
366	If the frequency of a series capacitve circuit increases, what happens to the current	it increases	it decreases	it stays the same	it increases or decreases
367	What is the minimum number of BCF extinguishers required on an aircraft with a seating capacity of 62 passengers	2	3	4	5
368	The advantages of a chemical oxygen generator system are	it is a self contained system, it is relatively light	it can be filled from outside the pressure hull , it can be turned off	the flow of oxygen can be regulated, it can be turned off	all of the above
369	The passenger oxygen drop down mask stowage doors are released	barometrically operated latch	electrically for chemical generator systems and pneumatically for gaseous systems	electrically for gaseous systems and pneumatically for chemical generator systems	by the cabin crew
370	A turbo propeller aircraft has 60 persons on board and is flying at 240 knots two hours away from the nearest landfall. It has a minimum requirement of	60 lifejackets	60 lifejackets and three 30 man liferafts	60 lifejackets and two 30 man liferafts	two 30 man liferafts
371	How many crash axes and crow bars must a 46 seat aircraft of 10000kg weight on board	a crash axe and crowbar on the flight deck	a crash axe or crowbar on the flight deck and a crash axe or crowbar in the cabin	a crash axe and crowbar on the flight deck and a crash axe and crowbar in the cabin	a crash axe or crowbar on the flight deck

372	The fire extinguisher system for an engine is activated	automatically immediately a fire is sensed	automatically once the engine has been shut down	by the pilot immediately a fire is detected	by the pilot once the engine has been shut down
373	In a gas turbine the maximum gas temperature is reached	in the combustion chamber	at the turbine exit	across the turbine	in the cooling air around the turbine
374	Select the conditions for highest engine performance	low temperature, low humidity, high temperature	low temperature, high humidity, high pressure	high pressure, high temperature, high humidity	low temperature, low humidity, high pressure
375	A reverse thrust door warning light is illuminated when	the reverser doors are unlocked	the thrust levers are lifted beyond ground idle	the reverse thrust mechanism is not operating correctly	asymmetric reverse thrust has been selected
376	Adjusting the mixture of piston engines as aircraft altitude increases is necessary to	increase fuel flow to compensate for decreasing air density	decrease fuel flow to compensate for decreasing air density	increase fuel flow to compensate for increasing air density	decrease fuel flow to compensate for increasing air density
377	The power output of a piston engine can be calculated by multiplying	force by distance	work by velocity	pressure by moment arm	torque by RPM
378	The fan stage of ducted fan engine is driven by the	LP turbine	IP turbine	HP turbine	HP compressor through reduction gearing
379	A fixed pitch propeller blade has wash-out from root to tip in order to	keep the local angle of attack constant along the blade length	keep the pitch angle constant along the blade length	keep the local angle of attack at its optimum value along the blade length	decrease the blade tangential speed from root to tip
380	The volume of the scavenge pump(s) in an engine lubrication system is greater than that of the pressure pump(s) in order to	prevent cavitation of the oil system feedlines	ensure heat is dissipated more efficiently	compensate for thermal expansion of the lubricating fluid	ensure that the engine sump remains dry
381	Variable inlet guide vanes are fitted to gas turbine engines to	increase the mass flow at high speeds	prevent a compressor stall at low engine speed	prevent a compressor stall at high engine speeds	decelerate the flow into the compressor
382	The theoretically correct air to fuel ratio for efficient combustion in a gas turbine under constant speed conditions is	5:1	15:1	25:1	40:1
383	What happens to the pressure and velocity of the gas stream from root to tip across the nozzle guide vanes	both remain constant	both increase	velocity increases, pressure decreases	velocity decreases, pressure increases
384	The effect of climbing at rated rpm but less than rated boost is to	increase full throttle height	reduce full throttle height	produce no change to the full throttle height	reduce the time to full throttle height.

385	The basic classifications of gas turbine is:	Impulse, Reaction, Impulse-reaction & Ram	Impulse, Reaction and Impulse-reaction	Axial flow and centrifugal flow	Single stage and two stage
386	What is the purpose of a surge box inside a fuel tank	Collect sediment at the bottom of the tank	Ventilate the tank during high pressure refuelling	Allow movement of fuel between tanks while refueling	Prevent sloshing of fuel away from pump inlet during abnormal manoeuvres
387	Emergency oxygen is provided by:	One system for both flight deck and cabin	Two independent systems, one for flight deck, one for cabin	Two systems each capable of supplying the flight deck and cabin	Three systems, one for the flight deck, one for the passengers and one for the cabin crew.
388	A 12 volt lead acid battery has a broken connection in a cell, the battery:	Provides 1/12th less voltage for the same time	Provides 1/12th less voltage for 1/12th less time	Is unserviceable	Will suffer from thermal runaway
389	A changeover relay	Allows an APU to connect to its busbar	Allows a GPU to connect to its busbar	Allows connection of AC to an unserviceable generator's busbar	Allows an alternate source to supply an essential busbar.
390	A relay is	A motorway breakdown service	A mechanically operated switch	An electrically operated switch	Another name for a solenoid
391	Fuel heaters are fitted	In the wing fuel tanks	In the fuselage fuel tanks	In the engine fuel system mounted on the engine	All of the above
392	Electrical heating devices	consume little power	are used for preventing ice on small areas (e.g pitot head, windscreen only)	are used for de-icing small areas	can de-ice large areas because there is a large excess of electrical power available
393	Reverse thrust lights come on when	reverser doors are unlocked	when reverse power above idle is selected	when reverse thrust is selected in flight	when the doors move towards the stowed position inadvertently
394	Electrical heating devices	consume little power	are used for preventing ice on small areas (e.g pitot head, windscreen only)	are used for de-icing small areas	can de-ice large areas because there is a large excess of electrical power available
395	Reverse thrust lights come on when	reverser doors are unlocked	when reverse power above idle is selected	when reverse thrust is selected in flight	when the doors move towards the stowed position inadvertently
396	Electrical heating devices	consume little power	are used for preventing ice on small	are used for de-icing small areas	can de-ice large areas because there is a large

			areas (e.g pitot head, windscreen only)		excess of electrical power available
397	Reverse thrust lights come on when	reverser doors are unlocked	when reverse power above idle is selected	when reverse thrust is selected in flight	when the doors move towards the stowed position inadvertently
398	Electrical heating devices	consume little power	are used for preventing ice on small areas (e.g pitot head, windscreen only)	are used for de-icing small areas	can de-ice large areas because there is a large excess of electrical power available
399	Reverse thrust lights come on when	reverser doors are unlocked	when reverse power above idle is selected	when reverse thrust is selected in flight	when the doors move towards the stowed position inadvertently
400	What is the frequency band for ADF	hectometric	metric	centimetric	decimetric
401	A pitot head is used to measure:	dynamic minus static pressure.	static plus dynamic pressure.	static pressure.	dynamic pressure.
402	A pressure head is subject to the following errors:	position, manoeuvre induced, temperature.	position, manoeuvre induced.	position, manoeuvre induced, density.	position, manoeuvre induced, instrument.
403	Turbulent flow around a pressure head will cause:	density error.	95% increase in manoeuvre induced error.	an increase in the dynamic pressure.	95% of pressure error.
404	Manoeuvre induced error:	is caused by transient pressure changes at static vents.	is likely to be greatest when yawing after engine failure.	is combined with instrument and position error on a correction card.	lasts for only a short time at high altitude.
405	Position error:	may be reduced by the fitting of static vents.	will usually decrease with an increase in altitude.	will depend solely on the attitude of the aircraft.	will usually decrease as the aircraft approaches the speed of sound.
406	Pressure heads supply data to the following instruments:	air data computers, compasses, altimeters, and ASI's.	standby instruments only, when air data computers fitted.	altimeters, ASI's, VSI's, machmeters, air data computers.	all the above plus air driven gyros.
407	Static vents are usually fitted to both sides of the aircraft fuselage. This will:	reduce the position error.	balance out errors caused by side slipping or yawing.	require a calibration card for each static vent.	enable a greater number of instruments to be fitted.
408	Which of the following instruments require inputs of both pitot and static pressure:	airspeed indicator, machmeter and vertical speed indicator.	airspeed indicator, vertical speed indicator, altimeter.	airspeed indicator only.	airspeed indicator and machmeter.
409	Where an alternate static source is fitted, use of this source usually leads to:	a temporary increase in lag error.	a lower pressure error than with normal	an increase in position error.	no change in position error.

			sources.		
410	Converted into degrees Celsius - 40°F is:	-56.5°C	-40°C	-20°C	-108°C
411	In an aircraft thermometer with an electrical resistance sensor to measure the air temperature, the resistance wire element is probably:	plutonium	platinum	potassium	beryllium copper
412	Flying at high speed at high altitude, the difference between ram air temperature and static air temperature is:	likely to be less than when flying low and slow.	due to adiabatic cooling.	due to adiabatic warming.	proportional to the square of the absolute temperature.
413	Aircraft air temperature thermometers are shielded to protect them from:	solar radiation.	accidental physical damage on the ground or hailstones in flight.	airframe icing.	kinetic heating.
414	At a true airspeed of 500 knots, a ram rise of air temperature can be expected of:	50 degrees Celsius	25 degrees Celsius	5 degrees Celsius	16 degrees Celsius
415	An air temperature probe may be aspirated in order to:	prevent icing.	measure air temperature on the ground.	compensate for thermal soaking at the ramp position.	reduce the effect of solar radiation.
416	The difference between static air temperature and total air temperature is known as:	corrected outside air temperature.	the ram rise.	the recovery factor.	hot ramp radiation.
417	A direct reading aircraft thermometer usually consists of a bimetallic helix protruding into the airstream. Movement of the pointer over the temperature scale will depend upon:	difference in electrical resistance of the two metals.	increase in pressure as airspeed increases.	increase in adiabatic cooling as airspeed increases.	different coefficients of expansion of the two metals.
418	If the pitot line to an ASI becomes totally blocked during a climb, the ASI reading will:	decrease, no matter what the actual airspeed is.	increase, no matter what the actual airspeed is.	progressively under indicate the value of the airspeed.	stick at the airspeed showing at the moment of blockage.
419	If the static line to the ASI becomes blocked during a long descent, a dangerous situation could arise due to the ASI:	overreading, this indicated speed falsely showing the aircraft to be further from the stalling speed than it actually is.	underreading, this indicated speed falsely showing the aircraft to be closer to the stalling speed than it actually is.	underreading, this indicated speed possibly leading to the operation of flaps and/or landing gear at speeds in excess of safety speeds.	overreading, this indicated speed possibly leading to the operation of flaps and/or landing gear at speeds in excess of safety speeds.
420	The airspeed indicator is calibrated to:	conditions of the International Standard	conditions of the International Standard	an air density of 1013.25 gms/m3	indicate correctly in any atmosphere.

		Atmosphere.	Atmosphere at MSL.		
421	Excluding blockages, the full list of errors of the ASI is:	instrument error, position error, density error, manoeuvre induced error.	instrument error, position error, temperature error, compressibility error, manoeuvre induced error.	instrument error, position error, barometric error, temperature error, lag, manoeuvre induced error.	instrument error, position error, density error, compressibility error, manoeuvre induced error.
422	Some ASIs have coloured arcs and lines marked on their dials. A yellow arc and a white arc indicate:	cautionary range and normal operating range.	flap operating speed range and normal operating range.	cautionary range and flap operating speed range.	flap operating speed range and cautionary range.
423	What will be the TAS if cruising altitude is 39 000 ft, temperature is ISA +5 and CAS 200 kt:	388 kt	380 kt	364 kt	370 kt
424	If the static line to the ASI becomes blocked during a climb, the ASI reading will:	increase, no matter what the actual airspeed is.	progressively under indicate the value of airspeed.	progressively over indicate the value of airspeed.	stick at the airspeed showing at the moment of blockage.
425	The diagram below shows a simple altimeter. The parts labelled A, B, C and D are:	pitot pressure inlet, linkage mechanism, bellows, quadrant.	air inlet, temperature compensator, leaf spring, linkage mechanism.	static pressure inlet, partially evacuated capsule, linkage mechanism, subscale setting device.	static pressure inlet, partially evacuated capsule, leaf spring, linkage mechanism.
426	When flying from low pressure to high pressure, the barometric error of an altimeter will cause the instrument to:	read the true altitude, providing a correction is made for temperature.	overread the true altitude of the aircraft.	indicate a higher altitude than the correct one.	underread the true altitude of the aircraft.
427	An altimeter with set on the subscale will indicate , but with set, the altimeter will show	1013; pressure altitude; QNH; height above mean sea level.	QNE; pressure altitude; QNH; height above airfield datum.	QFE; height above the airfield datum; 1013;height amsl.	QNH; height above touch down; 1013; height amsl.
428	An aircraft has one altimeter set to QFE and one to aerodrome QNH 1000 mb If the airfield elevation is 300 ft, immediately before take-off the altimeter with QFE set will read and the other If the QFE altimeter is set to 1013 when passing through the transition altitude 3000 ft, it will read (Assume 1 mb = 30 ft)	300 ft; zero; 2610 ft	zero; 300 ft; 3390 ft	zero; 300 ft; 3690 ft	zero; 300 ft; 2610 ft
429	Below is a schematic diagram of a servo-assisted altimeter The parts labelled A, B, C and D z	cam mechanism, amplifier, servo motor, mechanical drive.	mechanical drive, servo motor, amplifier, AC exciter.	cam mechanism, amplifier, E-1 bar, mechanical drive.	E-I bar, amplifier, servo motor, AC exciter, mechanical drive.

430	During a missed approach and go-around procedure the change of aircraft attitude plus raising of the landing gear and changing of flap settings can cause short term unpredictable errors in certain instruments The instruments most likely to be affected in this case are:	the altimeter, artificial horizon and vertical speed indicator.	the airspeed indicator, machmeter and vertical speed indicator.	the machmeter, airspeed indicator, altimeter and vertical speed indicator.	the vertical speed indicator, airspeed indicator and altimeter.
431	The vertical speed indicator indications may be in error for some seconds after starting or finishing a climb or descent The error is a result of	a combination of time lag and manoeuvre induced errors.	a combination of position error and manoeuvre induced errors.	manoeuvre induced errors only.	a combination of time lag and instrument error.
432	The advantage of having the VSI dial presentation in logarithmic spacing rather than in linear spacing is that:	at low rates of climb or descent the pointer movement is much larger and so is more easily read.	readings are instantaneous.	a greater range of rates of climb and descent is shown.	the internal mechanism is simplified by deletion of the calibration choke.
433	In the IVSI, lag error:	is overcome by feeding a sample of static pressure to the case and delaying it to the capsule.	is virtually overcome by using a special dashpot accelerometer assembly.	is overcome by the use of logarithmic presentation.	is only overcome when initiating a climb or descent.
434	When entering a steep turn, an IVSI is likely to show:	no change in altitude.	a slight clim	a slight descent.	a slight descent at high airspeed only.
435	If the static vent becomes blocked during a climb:	the VSI will stop at the rate of climb of the aircraft at the time of blockage.	the VSI will indicate a decreasing rate of clim	the VSI will return to zero.	the VSI will indicate an increasing rate of climb.
436	Change of temperature as an aircraft climbs or descends:	will affect VSI readings whenever temperature lapse rate differs from standard conditions.	is compensated at the metering unit by means of a capillary and orifice.	has no effect on the VSI as only static pressure is used in this instrument.	may be allowed for by use of tables or computer.
437	Permissible limits of accuracy of the VSI are when within a temperature range of and outside this range	± 250 fpm, on the ground, -20°C to +50°C, ± 300 fpm	± 200 fpm, at any height, -20°C to +30°C, + 300-fpm	± 250 fpm, at any height, -20°C to +50°C, + 300 fpm	+ 200 fpm, on the ground, -20°C to +50°C, + 300 fpm
438	The red pole of a freely suspended magnet will point towards and at latitude 60 °N will point at an angle known as the angle of	the nose of the aircraft, downwards, deviation.	the north magnetic pole, downwards, variation.	the nearest pole, downwards, declination.	the north magnetic pole, downwards, dip.
439	If the total force of the earth's field at a point is T and the horizontal and vertical components H and Z, the value of H is	H = T sin dip	H = Z tan dip	H = T cos dip	H = T tan dip

	found by the formula:				
440	In the diagram below, the compass heading of the aircraft is , the magnetic heading And the true heading	025° 015° 020°	335° 035° 020°	335° 340° 035°	025° 015° 340°
441	The directive force of the earth's magnetic field:	varies with the heading of the aircraft.	increases as the magnetic variation increases.	increases as magnetic latitude increases.	is greatest at the magnetic equator.
442	The slow change in the earth's magnetic variation is known as the change and is caused by	annual, westerly movement of the magnetic pole.	diurnal, easterly movement of the magnetic pole.	secular, westerly movement of the magnetic pole.	annual, sunspot activity.
443	Soft iron is comparatively to magnetise whilst hard iron is to demagnetise	easy; difficult.	easy; easy.	difficult; easy.	difficult; difficult.
444	The magnetic moment of a magnet:	is the product of pole strength and effective length.	varies inversely as the square of the distance between the poles.	varies directly as the square of the distance between the poles.	decreases as the magnet length increases.
445	The main requirements of a direct reading magnetic compass are that it should be:	horizontal, sensitive, periodic.	easily read, floating in a transparent liquid, quick to react to change in aircraft heading.	positioned directly in front of the pilot, easily corrected for magnetic deviation, aperiodic.	aperiodic, horizontal, sensitive.
446	For a position in the southern hemisphere, the effect of acceleration errors are greatest on headings:	180°(C) and 360°(C)	045°(C) and 225°(C)	135°(and 315°(	090°(C) and 270°(C)
447	In a standby compass the magnet system is immersed in a transparent liquid The purpose of this liquid is to:	increase sensitivity, increase aperiodicity.	increase sensitivity, decrease aperiodicity.	increase sensitivity at high latitudes, lubricate bearings.	increase sensitivity, reduce liquid swirl.
448	To improve the horizontality of a compass, the magnet assembly is suspended from a point:	on the centre line of the magnet.	below the centre of gravity.	above the centre of gravity.	varying with magnetic latitude.
449	The magnitude, and sense, of turning error shown by a direct reading compass varies with:	the design of the compass and the amount of dip at the aircraft's latitude.	the direction of the turn and the rate of turn.	which hemisphere the aircraft is in and the heading of the aircraft.	all of the above.
450	During a sustained turn the nearer magnetic pole, the effect of liquid swirl will Compass turning error	away from; increase.	towards; not affect.	away from; not affect.	towards; increase.
451	The spin axis of a directional gyro is maintained in by means of in an air	the horizontal plane; air jets; wedge plate.	the vertical plane; air jets; torque motor.	the yawing plane; air jets; torque motor.	the yawing plane; air jets; wedge plate.

	driven gyro and by means of a in an electrically driven gyro:				
452	The purpose of the caging knob is:	to prevent the gyro toppling.	to reset the heading.	to reset the heading and to prevent toppling.	to prevent apparent wander.
453	In an air driven directional gyro the air jets are attached to:	the inner gimbal.	the outer gimbal.	the instrument casing.	the rotor axis.
454	The limits of pitch and roll for a modern directional gyro are respectively:	55' and 85'	85' and 55'	55' and 55'	85' and 85'
455	Gimballing error:	will disappear after a turn is completed.	will remain until the gyro is reset.	will only occur during a 360° turn.	will be zero on only two headings during a 360° turn.
456	The indication at Figure 1 shows:	a climbing turn to the right.	nose-up and left wing down	30° starboard bank, nose up.	30° port bank, nose below horizon.
457	False nose-up attitude displayed on air driven artificial horizon during the take-off run is caused by:	the high pendulosity of the rotor	the lag of the lateral pendulous vanes	the linear acceleration cut out	incorrect rotor speed
458	The rotor axis of an electrical horizon is tied to the earth's vertical by:	four pendulous vanes	the roll cut out	the low centre of gravity of the rotor housing	two mercury level switches and two torque motors
459	False right wing low attitude shown on an air driven artificial horizon during an acceleration is caused by:	the lag of the base of the rotor housing	the logitudinal pendulous vanes	the roll cut-out	high rotor speed
460	Inside an artificial horizon:	the inner gimbal ring is pivoted laterally inside the outer gimbal ring and the outer gimbal ring is pivoted longitudinally inside the case	the inner gimbal ring is tied to the vertical by a control system	the rotor axis is kept level by a calibrated spring attached to the outer gimbal ring and the instrument case	there is only one gimbal ring
461	When an adjustable aircraft datum is fitted to an artificial horizon in light aircraft:	it should be checked at regular intervals	it should be set to the central position and left there	it should be rendered inoperative	it should be set to 15°
462	An electrically driven artificial horizon has less errors during the take-off run because:	it is less pendulous, has a higher rotor speed and a linear acceleration cut out	the mercury level switches are more sensitive than the pendulous vanes fitted to air driven types	the roll cut-out speed is activated	it is less aperiodic than the air driven types
463	The rate of turn indicator uses (i) which	space gyroscope up and	tied gyro anti-	rate gyro up and	earth gyro Clockwise

	spins (ii) i ii	away from the pilot	clockwise when viewed from above	away from the pilot	
464	The gyro in a rate of turn indicator has (1) operating speed than the gyros used in other instruments because (ii) i ii	lower, a higher rigidity is not required	the same, it uses the property of rigidity	a higher, a low precession rate gives a greater operating range	variable, more than one rate of turn is desired
465	At Figure 1 The TBI shows:	a rate of turn to the left, slipping in	an aircraft taxiing and turning starboard	that the aircraft will complete a turn in oneminute	the aircraft is yawing to the right
466	When the pointer of a rate of turn indicator shows a steady rate of turn:	the calibrated spring is exerting a force about the lateral axis equal to the rate of turn	the force produced by the spring is producing a precession equal to but opposite to the rate of turn is correctly banked	the spring is providing a force which produces a precession equal to the rate of turn (in the opposite direction).	the spring is providing a force which produces a precession equal to the rate of turn (in the correct direction)
467	If the filter of the air driven rate of turn indicator becomes partially blocked:	the aircraft will turn faster than indicated	the instrument will overread	the rate of turn indicated will be unaffected	the radius of the turn will decrease
468	The gimbal ring of a turn co-ordinator is inclined at about 30° with respect to the aircraft's longitudinal axis in order:	make the rate of turn more accurate	make the gyro sensitive to banking of the aircraft as well as to turning	make the gyro more effective during inverted flight	have a higher rotor speed which will prolong the life of the instrument
469	If an aircraft turns as indicated in Figure 1:	the aircraft will turn through 180° in two minutes	it will take one minute to turn through 90°	the aircraft is turning left at less than 3°/ second	the aircraft is turning left at 3°/ second
470	Regulatory Requirements state that the maximum permissible deviations after compensation are:	one degree for a remote indicating compass and ten degrees for a direct reading magnetic compass.	three degrees for a direct reading magnetic compass and one degree for a remote indicating compass.	ten degrees for a remote indicating compass and one degree for a direct reading magnetic compass.	one degree for a direct reading magnetic compass and eleven degrees for a slaved compass.
471	Aircraft magnetism caused by Vertical Soft Iron:	varies with magnetic heading but not with magnetic latitude.	varies with magnetic latitude but not with heading.	it is not affected magnetic latitude or heading.	varies as the cosine of the compass heading.
472	The detector unit of a remote indicating compass is normally:	Fixed in the vertical plane only	Fixed in the azimuth	Free in the vertical	Free in the horizontal plane
473	In a remote indicating compass, the rotor of the slaved gyro is automatically	A levelling switch and torque motor	pendulous suspension	Bevel gears and gimbals	A torque motor

	prevented from wandering in the vertical plane by means of:				
474	Regulations state that the residual deviation of a remote indicating compass shall not exceed;	1 degree	3 degrees	2 degrees	5 degrees
475	What prevents the rotor of the slaved gyro from wandering in the horizontal plane:	A levelling switch	An alignment switch	A precession circuit	A follow up amplifier
476	A DG flag appears on the pilots gyro unit What does it indicate to the pilot?	Remote indicating compass in unserviceable	The compass is misaligned	The gyro is no longer being monitored by the detector unit	The compass is aligned with the detector unit
477	The function of the follow up system in a remote indicating compass is to;	Exercise a low rate if control over the gyro unit	Maintain the master indicator aligned with the gyro unit	Ensure the two gyro units are in alignment	To ensure that the annunciator unit is working
478	The purpose of the annunciator circuit is to:	Alternate irregularly	Alternate regularly	To indicate that the system is synchronised	To show by a dot or a cross independently that the system is synchronised
479	With reference to the flux valve of a remote indicating compass;	The flux valve is pendulously mounted and is free to turn to remain aligned with the earth magnetic field	The flux valve is not subject to acceleration errors	The flux valve is pendulously mounted and so it is not subject to or affected by the earth's magnetic field	The flux valve is fixed to the aircraft and so turns with the aircraft to measure the angle between the aircraft and the earth's magnetic field
480	A partially blocked air filter will cause the air-driven turn indicator to:	under read the correct rate of turn.	over read the correct rate of turn.	read in the reverse sense.	indicate zero rate of turn.
481	The rate of precession of a gyro varies:- APPLIED FORCE ROTOR SPEED ROTOR MASS	directly inversely inversely	directly inversely directly	inversely directly inversely	inversely directly directly
482	An aircraft flying at a constant FL and maintaining a constant TAS flies into an area of warmer air The air density is causing the CAS to	increasing decrease	decreasing increase	decreasing decrease	increasing increase
483	Referring to the turn and slip indicator shown, the indications are that a 90° turn will be completed in secs and there is bank for the	more than 15 secs too much G factor	more then 30 secs too little radius of turn	less than 15 secs too little TAS	less than 30 secs too much IAS
484	In a climb the pitot line becomes blocked	the original rate of climb.	too high a rate of clim	too low a rate of	zero.

	The vertical speed indicator (VSI) will indicate:			climb.	
485	An aircraft accelerates on a westerly heading in the N hemisphere The compass needle rotates indicating a turn towards	clockwise north	anti-clockwise north	clockwise south	anti-clockwise south
486	In high speed flight at high altitude the static source will suffer:	barometric error	lag	temperature error	position error
487	A VSI metering unit incorporates a capillary tube to compensate for:	barometric error.	position error.	temperature and pressure changes with height.	viscosity changes.
488	In the diagram of a gyro magnetic compass, the components labelled B, H and D in order are:	flux valve inductive pick-off servo motor	signal selsyn rotor amplifier	stators rotor two way motor	servo motor stator amplifier
489	If the pitot line becomes blocked in the descent, the ASI will indicate:	an increasing CAS	a decreasing CAS	a steady CAS	zero
490	The restricted choke in the VSI:	will prevent the instrument being damaged by high rates of climb and descent.	compensates for changes in temperature and density only.	creates a differential pressure between the capsule and the case as its main function.	compensates for time lag in the instrument.
491	An aircraft is flying at a constant CAS If the ambient temperature , the TAS will due to The words to correctly complete the above statement are:	falls fall decreasing density.	rises rise increasing density.	rises rise decreasing density.	falls fall decreasing pressure.
492	The latitude correcting device of an air driven directional gyro is:	an adjustable weight attached to the outer gimbal of the DI.	an adjustable weight attached to the inner gimbal of the DI.	the air jet which drives the rotor.	a chamber with four exit slots half covered by pendulous vanes.
493	Refer to Appendix A Figure D is a diagram of:	an altimeter.	a vertical speed indicator.	a machmeter.	an air speed indicator.
494	An uncorrected gyro is set to read 100° The gyro reading after 45 minutes when stationary on the ground in latitude 25°S is:	106.3°	104.8°	093.7°	095.3°
495	If the static source to an altimeter becomes blocked during a descent, the instrument:	will over read by a constant amount.	continues to show the height at which the blockage occurred.	will progressively under read.	pointer will return to indicate a height equivalent to the sub-scale setting.
496	An electrical Artificial Horizon employs	erection chamber	fast erect buttons	mercury switches	precession circuit torque

	and to maintain its position in relation to Select the line of phrases given below that would complete the above statement correctly:	pendulous vanes space	micro switches local longitude	torque motors the local vertical	motor azimuth
497	Refer to the following diagram of a gyro magnetic compass system The correct description of the components labelled A, B and C in order are:	flux valve system stators gyro unit	synchronising unit stators motor	signal selsyn stators follow-up motor	stator system rotor gyro unit
498	Refer to Appendix A Figure B is a diagram of:	an altimeter	a vertical speed indicator	a machmeter	an air speed indicator
499	The principle of operation of the turn and slip indicator is best described as:	a space gyro which uses the force of precession against a spring to give a reading of the aircraft rate of turn.	a single gimbal gyroscope whose primary precession is opposed by a spring which, in turn, produces a second precession equal and opposite to the aircraft rate of turn.	a single gimbal gyroscope in which a spring, opposing the primary precession, in turn produces a secondary precession equal to the aircraft rate of turn.	an earth gyro in which a calibrated spring ensures the tilt of the gyro is proportional to the aircraft rate of turn.
500	The subscale of an altimeter is set to 1030 mb and indicates 4500 ft when the QNH is 996 mb Assuming 1mb equals 30 ft, the true height of the aircraft AMSL is:	3180 ft	3990 ft	5520 ft	3480 ft
501	During the take-off run, the air driven artificial horizon will indicate:	a climb due to the pendulosity of the inner gimbal.	a climb due to the action of the pendulous vanes.	a right turn due to the pendulosity of the outer gimbal.	a right turn due to the action of the pendulous vanes.
502	Refer to the diagram below of a servo altimeter The correct descriptions of the components labelled A, B and C in order are:	indicator transducer cam	two-way motor transducer sub-scale setting knob	amplifier two-way motor cam and follower	two-way motor follower sub-scale setting knob
503	The precession of a gyroscope varies:	directly with the applied force and directly with the inertia of the rotor.	indirectly with the applied force and indirectly with the inertia of the rotor.	directly with the applied force and indirectly with the inertia of the rotor.	indirectly with the applied force and directly with the inertia of the rotor.
504	The air driven artificial horizon uses gyroscope which is maintained by means of The words which correctly complete the above sentence are:	a free horizontal case levelling	an earth vertical pendulous vanes.	a space horizontal a pitch-bank erection system.	an earth vertical torque motors

505	In a turn from 045° to 315° through north in the northern hemisphere, the movement of the magnet system of a direct reading compass, when viewed from above and the effect of liquid swirl on the error caused by the movement are: MAGNET SYSTEM LIQUID SWIRL	anticlockwise reduce	clockwise increase	anticlockwise increase	clockwise reduce
506	An aircraft flying at FL 100 and at a constant CAS, flies from an area of warm air into an area of cold air Assuming the QNH is the same during the change of temperature, the aircraft height AMSL and the TAS will have: Height AMSL TAS	decreased increased	increased increased	decreased decreased	increased decreased
507	Equivalent airspeed (EAS) is:	IAS corrected for compressibility.	IAS corrected for instrument error only.	CAS corrected for compressibility.	CAS corrected for position error.
508	If during a climb, the static source becomes blocked, the vertical speed indicator (VSI) will show:	a decreased rate of climb.	a zero rate of clim	an increased rate of climb.	a normal rate of climb.
509	Dynamic pressure is:	static pressure minus pitot pressure.	pitot pressure plus static pressure.	density and static pressure.	pitot pressure minus static pressure.
510	In the diagram below of a gyromagnetic compass system, the components A, B and C in order are:	flux valve rotors annunciator	signal selsyn stators gyroscope unit	flux valve stators gyroscope unit	indicator flux valve amplifier
511	The deviating effect of vertical soft iron (VSI) with decrease of magnetic latitude, due to the of H and the of Z The line containing the words to correctly complete the above statement is:	increase decrease increase	decrease increase decrease	decreases increase increase	increases decrease decrease.
512	The speed at the upper end of the Green arc on the ASI is:	VRA	VNO	VNE	VMC.
513	The servo altimeter is superior to the sensitive altimeter because:	it reduces barometric error.	it reduces high altitude error.	it reduces temperature error.	all of the above are correct.
514	The rotor of a rate gyroscope is over speeding The pilot carries out a turn with the rate gyroscope indicating Rate 1 The actual rate of turn will be:	3° per second.	more than 3° per second.	less than 3° per second.	6° per second
515	If the rpm of the rotor in a turn and slip indicator is higher than normal, the turn	over read the correct rate of turn.	under read the correct rate of turn.	not indicate due to the increased rigidity.	indicate correctly.

	indicator will:				
516	The rigidity (gyroscopic inertia) of a gyroscope may be increased by:	increasing the number of gimbals and decreasing the number of planes of rotation.	increasing the speed of rotation and decreasing the mass of the rotor.	increasing the speed of rotation and increasing the mass of the rotor.	decreasing the speed of rotation and increasing the mass of the rotor.
517	A blockage in the static line to the VSI will subsequently cause the instrument to display:	a decreased rate of climb.	an increased rate of clim	a zero rate of climb.	an increased rate of descent.
518	An aircraft fitted with a direct-reading compass is turning from 315° through north on to 045° in the southern hemisphere The direction of turn of the magnet system and the effect of liquid swirl on the error due to the turn are:TURN LIQUID SWIRL	anti-clockwise reduce	clockwise reduce	anti-clockwise increase	clockwise increase
519	In an inertial-lead VSI the source of the most pronounced error is:	instrument.	position.	steep turn.	missed approach manoeuvre.
520	In a turn and slip indicator the largest errors will be induced by:	yaw	angle of bank	primary torque	reduced spring tension
521	With reference to the flux valve of a gyromagnetic compass:	the flux valve is pendulously mounted and is free to turn so that it remains aligned with the earth magnetic field.	the flux valve is fixed to the aircraft and so turns with the aircraft to measure the angle between the aircraft and the earths magnetic field.	the flux valve is not subject to acceleration errors.	the flux valve is pendulously mounted and so is not affected by the vertical component of the earths magnetic field.
522	Total air temperature is:	the temperature of air which has suffered the full effect of compression heating.	the ambient air temperature.	static air temperature minus ram air temperature.	true outside air temperature allowing for cooling
523	An aircraft is carrying out a rate one turn at a TAS of 480 kt The diameter of the turn will be:	2.5 nm	15 nm	5 nm	10 nm
524	The following symbols, A, C and E are best described respectively as:	off route way point, airport, navigation aid.	next way point, navigation aid, airport.	off route way point, navigation aid, a navigation point making up selected route.	active way point aircraft currently navigating to, navigation aid, off-route way point.

525	With reference to an EHSI, the mode in which the following symbols would be displayed is:	PLAN	VOR	MAP	ILS
526	Ring laser gyros utilise a "Dither" motor to:	prevent "lock-in" of the laser beams.	to reduce real wander.	to prevent bounded errors.	to level and align the gyros.
527	An altimeter is accurate to ± one millibar so at 20,000 feet and 40,000 feet it is accurate to: 20,000 40,000	± 30 feet ± 50 feet	± 50 feet ± 100 feet	± 100 feet ± 30 feet	± 40 feet ± 75 feet
528	The IVSI reduces (i) error by use of (ii) (i) (ii)	time lag dashpots	instrument jewelled bearings	density dashpots	compressibility restricted choke
529	The rotational speed of the gyroscope in a turn indicator falls below the correct operational speed A 90° turn at an indicated 'rate one' on this turn indicator will take:	30 seconds.	less than 30 seconds.	more than 30 seconds.	30 seconds ± 10 seconds either way.
530	An artificial horizon with an air driven gyroscope, (spinning anti-clockwise seen from above),is subjected to acceleration during a take-off run As a result the instrument indications will falsely show:	the right wing going up and the nose going down.	the right wing going up and the nose going up.	the right wing going down and the nose going up.	the right wing going down and the nose going down.
531	In Figure 6 1, a diagram of a detector unit and selsyn, the arrowed items are identified as:	W = AC excitation, Z = flux valve pick-off coil and Y = stator coil.	W = AC excitation, X = flux valve pick-off coil and Z = stator coil.	X = flux valve pick-off coil, Z = rotor pick-off coil and Y = stator coil.	W = AC excitation, X = stator coil and X = rotor pick-off coil.
532	The aerodynamic angle of incidence (angle of attack) is:	the angle between the longitudinal axis and the relative air flow.	the angle between the chord line of the wing and the lateral axis.	the angle between the chord line of the wing of an aircraft and the direction of the relative air flow.	the angle between the wing and the chord line.
533	Vertical Speed Indicator indications may be in error for some seconds after starting or finishing a climb or descent This error is a result of:	a combination of time lag and instrument error.	a combination of position error and time lag.	a combination of time lag and manoeuvre induced error.	manoeuvre induced error only.
534	An aircraft flies from A to B with QNH at A of 1019 mb set on the altimeter subscale throughout the flight Assuming all other errors are zero and that 1 mb = 30 feet, when overhead B, QNH 1013 mbs, the altimeter will be:	over indicating by 120 feet.	over indicating by 180 feet.	indicating true altitude.	under indicating by 180 feet.

535	The gyroscopic instrument which has its spin axis tied to the earth's vertical is:	the turn indicator.	the artificial horizon.	the INS azimuth gyro.	the directional gyro indicator.
536	The turn and slip and artificial horizon shown in Figures 7 1 & 7 2 show the aircraft to be turning left at rate one:	with too much bank and nose below the horizon.	with insufficient bank and nose above the horizon.	and skidding out with nose below the horizon.	slipping in with nose below the horizon.
537	An artificial horizon with an electrical driven gyroscope has greatly reduced take-off errors This is because:	the gyro has greater rigidity, is less bottom heavy and there is a linear accelerometer cut- out switch fitted.	it is fitted with a roll cut-out switch and a linear cut-out switch.	the gyro has greater rigidity, is less bottom heavy and there is a roll cut-out switch fitted.	the fast erection switch is used to overcome topple by increasing the erection rate to a high value.
538	The correct check for a turn and slip indicator when taxying and turning left is:	needle left, ball left.	needle left, ball right.	needle right, ball left.	needle right, ball right.
539	Compared to the VSI what errors are eliminated by the IVSI?	lag	turning	pressure	temperature
540	In the diagram below, a picture of a remote indicating compass, what are the components X, Y and Z?	ac excitation, pick-off coil and rotor	pick-off coil, stator and rotor	pick-off coil, rotor and stator	stator, ac excitation and pick-off coil.
541	In an INS the gyros should be strap down In an IRS the gyros should be strap down	always, never.	always, always.	never, always.	never, never.
542	The airspeed indicator is calibrated to;	ISA at mean sea level.	ISA at 36,090 ft.	ISA at the height the aircraft is flying.	the full ISA.
543	A DGI reads 300°T when the aircraft is stationary at 60°S, what will the DGI read after 40 minutes?	309°	287°	313°	291°
544	Aircraft magnetism;	varies with aircraft heading and latitude	varies with latitude but does not vary with aircraft heading	does not vary with aircraft heading or latitude	does not vary with aircraft latitude but does vary with aircraft heading
545	The turn and slip and artificial horizon illustrated in Figure 8 3 show the aircraft to be turning;	right at 30 degrees angle of bank with slip	right at 30 degrees angle of bank with skid	right with insufficient bank and the nose above the horizon	left with skid
546	An aircraft is flying a rate 1 turn at 480 kt TAS What is the diameter of the turn?	3nm	5nm	6nm	2nm
547	In gyroscopic theory the term `Topple' is defined as;	wander, real or apparent, in the horizontal plane	real wander only in the vertical plane	wander, real or apparent, in the vertical plane	real wander only in the horizontal plane
548	Full VOR display is shown in diagram,	A	D	E	F
549	On which of the displays can weather be displayed?	B, D and E	A, C and F	B and D	C, E and F

550	What would be the display which resulted from the selection shown in Figure 8 4	B	E	A	D
551	Ring laser gyros utilise a `Dither' motor to;	reduce real wander	prevent unbounded errors	level and align the gyros	prevent lock in of the laser beam
552	Which of the following is true regarding the turn co-ordinator?	It has a tied gyroscope.	Its gyro is offset by 30° to the longitudinal axis of the aircraft.	It gives angle of bank and rate of turn.	It responds to rate of turn only.
553	The altimeter in Figure 8 5 shows;	FL 27	FL 270	a pressure altitude of 20,700ft	a height of 2,700ft
554	Compressibility is corrected for when obtaining;	EAS from CAS and the correction is always subtractive.	CAS from IAS and the correction can be either additive or subtractive.	EAS from CAS and the correction is normally subtractive.	CAS from IAS and the correction is normally subtractive
555	The colour arcs of an ASI are in ascending speed order?	green, yellow and red	blue, yellow and red	white, yellow and red	white, green and yellow
556	An altimeter has an error of 1 mb The error at 20,000ft will be _____, while at 40,000ft the error will be _____	30ft, 30ft	50ft, 100ft	I Oft, 30ft	50ft, 80ft
557	A single axis autopilot system:	Provides stabilisation about the normal axis	Provides control about the pitch axis	Is unsuitable for use in powered aircraft	Provides control about the roll axis
558	A single axis autopilot may also be called:	Altitude hold	Wing leveller	Pitch control loop	Auto stabilisation loop
559	An auto pilot:	is a system which will maintain a preselected altitude	is a system which will maintain a preselected airspeed	is an auto stabilisation system	is an outer loop control system
560	The fundamental components of an autopilot control loop are:	Rate gyro, servomotor, error signal generator	Rate gyro, servo motor, torque limiter	Torque limiter, error signal generator, servomotor	Servo motor, rate gyro, torque limiter, error signal generator
561	A device in a closed loop control system in which a small power input controls a much larger power output in a strictly proportionate manner is:	An amplifier	A servomechanism	A powered flying control unit	A rate gyro
562	An automatic flight control system:	Is another name for an autopilot system	Applies flight data to the auto pilot system	Is automatically disengaged by a GPWS alert	Can only be used in EFIS equipped aircraft
563	An aircraft has yaw damping included in its auto stabilisation system An essential requirement of such a system is:	A three axis autopilot system	Parallel connected servo motors	Automatic maintenance of c of g position	INS inputs to the CADC

564	Automatic flight systems may be capable of controlling the aircraft flight in:	Azimuth, elevation and velocity	Azimuth and velocity only	Azimuth only	Azimuth and elevation only
565	An automatic flight control system is fitted with control wheel steering (CWS)	The autopilot must be disengaged before the pilot can input manoeuvring commands	Manoeuvring commands may be input by applying normal forces to the control yoke without first disengaging the autopilot	Manoeuvring commands may be input using pitch and turn controls on the automatic flight system control panel, without first disengaging the autopilot	The CWS is only there for steering on the ground
566	During an approach to an autoland at 1500 feet:	Off line channels are manually engaged, flare mode is armed	Localiser is controlling the roll channel, off line channels are automatically engaged and flare mode is armed	Localiser is controlling the roll channel, stabiliser is trimmed nose up and roll out is armed	Provided both localiser and glideslope signals are valid LAND 3 will illuminate
567	Inputs to the rudder channels initially originate from:	Servomotors	Compass gyro and gyro for AH	Compass gyro and turn and slip gyro	AH gyro and turn and slip gyro
568	An automatic flight system which can safely continue with an automatic landing after a system failure is a:	Fail redundant system	Fail passive system	Three axis system	Fail operational system
569	During an autoland the caption LAND 2 is illuminated The system is:	Fail active or fail operational	Fail passive	Approaching decision height	Requiring a crew input
570	During an autoland approach:	flare is engaged at 1500'agl	localiser roll control is disengaged just prior to touchdown	flare is disengaged prior to touchdown at 5'GA	glideslope is the engaged pitch mode until 5'GA
571	In an autoland at 1000' AGL with two autopilots engaged:	the armed roll mode would be LOCALISER	the engaged roll mode would be GLIDESLOPE	the engaged pitch mode would be FLARE	the engaged roll mode would be LOCALISER.
572	An automatic flight control system in which the application of normal forces on the control column allows the ilot to input demands to the autopilot is a:	control wheel steering	touch control steering	series connected system	parallel connected system.
573	If a fault develops in a Triplex auto-pilot system during an approach, the system will revert to;	fail passive and the landing may continue.	fail control wheel mode.	fail operational.	a manual disconnect.
574	Inner loop stability is obtained by;	inputs from the Air Data Computer.	manometric locks.	'I' bar displacement.	raw data feed to the data control bus bar.

575	The mode that enables the pilot to manoeuvre his aircraft in pitch and roll by use of the automatic control system is called the;	control wheel steering (CWS)mode that allows the pilot to control the aircraft, and when the wheel is released, the aircraft holds the newly established attitude.	touch control steering that will permit the pilot to control the aircraft via the air data computer.	control wheel steering mode which will disengage the servomotors.	the touch control steering mode which will prevent the flaps retracting.
576	Touch control steering;	prevents aerodynamic feedback.	will only operate while the flaps are down.	allows the pilot to control the aircraft with the servomotors disengaged.	engages the servomotors during manual operation in pitch and roll.
577	A system which can still function without degradation of performance after a failure has;	fail passive ability.	fail soft ability.	fail operational ability.	fail symbol ability.
578	Heading hold mode relates to control in ;	the height lock via the CADC.	the pitch channel via the inner loop.	the roll channel via the outer loop control source.	the manometer mode of the CADC.
579	The system which allows the pilot to control the aircraft with the servomotors engaged is called;	touch control steering.	control wheel steering.	the electronic inner / outer axis loop.	the outer loop control.
580	The type of automatic landing system which would necessitate a manual landing after a system failure during an automatic approach is	fail passive.	fail safe.	fail active.	fail operational.
581	After a failure of one of the necessary redundant systems below alert height you would;	continue the descent but revert to a higher D.H.	carry out a missed approach.	disengage autoland and take over manually.	continue descent and land automatically.
582	When localiser and glide slope are captured at 1,500 feet during an automatic landing sequence, two other functions will be activated at the same time, they are;	touch down mode and roll out mode.	flare mode arm and touch down mode.	flare mode engage and roll out mode.	flare mode arm and off line channels engaged.
583	A fundamental requirement of a closed loop servo-mechanism is;	a stable reference device.	an interlock control.	a tacho-generator.	feedback.
584	ALT HOLD is an example of :	Inner loop control in the roll axis	Outer loop input to the pitch channel	Outer loop control about the longitudinal axis	Inner loop control in the pitch axis
585	A rate gyro:	Has three degrees of freedom, two gimbals and a	Senses rate of turn and positions an indicator	Supplies rate and displacement	Controls the outer loop inputs

		transducer	on the EHSI	information to the computer	
586	To prevent servo motor runaway from producing excessive demands to the control surface :	A gyro damper is fitted	A torque limiter is fitted	A gyro limiter is fitted	A torque converter is fitted
587	With the Autopilot engaged engaged in the Alt mode the Captain alters the barometric setting The aircraft	maintains its altitude	changes its altitude in accordance with the change in pressure setting	switches barometric input over to the 1 s` Pilot setting	trips out of altitude hold.
588	Control wheel steering enables a pilot to:	taxy the aircraft on the ground	manoeuvre the aircraft in the air while the autopilot is engaged	alter the flight path while the autopilot is engaged by applying a breakout force	manoeuvre the aircraft with the autopilot disengaged.
589	Auto synchronization in an aircraft :	requires that the interlocks are made before the autopilot will engage	ensures that, when the autopilot is engaged, the take-over is effected smoothly and without snatching on the control system	requires that the aircraft is trimmed out before the autopilot can be engaged	needs at least two alternators running in parallel.
590	The regulatory requirements for single pilot operation under IFR state that the aircraft must be fitted with:	a single axis autopilot	a two axis autopilot	a three axis autopilot	a two axis autopilot with autothrottle
591	Regulatory operational requirements for the installation of automatic pilot state that the system must have: A automatic synchronisation B quick release controls on both control wheels	Only statement A is correct	Only statement B is correct	Both statements are correct	Neither statement is correct.
592	The control laws for an autopilot are known as:	normal law and emergency law	alternate law and direct law	normal, alternate and emergency laws	normal, alternate and direct laws.
593	An autoland system that, in the event of an autopilot failure, continues to function without degradation of performance beyond the limits required automatic, would be one with the status:	fail passive	fail safe	fail operational	duplex.
594	The Autoland sequence is considered to be complete when:	reverse thrust is engaged	the autopilot is manually disengaged by the pilot	the aircraft touches down	the aircraft reaches the end of the runway.
595	An aircraft on Autopilot is engaged in the	automatically switches to	decouples from the	tunes to the next VOR	decouples from the VOR

	VOR mode and loses the VOR signals as it flies through the VOR cone of silence The autopilot:	Heading mode	VOR and disconnects	on the route	and flies the last heading for a fixed period.
596	For an aircraft with a non-synchronised autopilot system, `snatching' of the controls by the autopilot when engaging or disengaging can be prevented by:	the pilot ensuring that the aircraft is trimmed out before selecting or disengaging the autopilot	being in a straight and level position	disengaging the autotrim	switching on the yaw dampers.
597	With the autopilot in CWS the pilot manoeuvres the aircraft and releases control The aircraft will maintain	heading and altitude	heading, speed and attitude	altitude and attitude	attitude at the time of release.
598	For a commercial aircraft operating with a single pilot in IFR the minimum requirement is that the autopilot should have control in:	three axes	Heading mode	Altitude Hold and Heading mode	Altitude Hold, Heading mode and Speed.
599	An air driven DGI is corrected for apparent wander at 56°N If the aircraft is maintaining constant DGI readings:	when flying north from 56°N the true heading of the aircraft will decrease.	when flying east from 56°N the true heading will decrease.	when flying south from 56°N the true heading will decrease.	when flying west from 56°N the true heading will increase.
600	The formula used to calculate apparent wander of a directional gyro in the northern hemisphere is:	+15 sine latitude in degrees for the time of running.	+15 sine latitude in degrees per hour.	-15 sine latitude in degrees per hour.	15 sine latitude in degrees per hour increasing.
601	A 2 axis gyro, measuring vertical changes will have:	one degree of freedom, vertical axis	two degrees of freedom, vertical axis	one degree of freedom, horizontal axis	two degrees of freedom, horizontal axis
602	The properties of a gyro are:	mass , rigidity & inertia	rigidity & precession	rigidity & inertia	mass & inertia
603	An aircraft fitted with a Direct Reading Magnetic Compass (DRMC) upon landing in a northerly direction will indicate:	no change	oscillation about north	a turn towards east	a turn towards west
604	Which of the following will effect a direct reading compass?	ferrous metals only	ferrous metals & electrical equipment	ferrous metals & non-ferrous metals	all of the above
605	A vibrator may be fitted to an altimeter to overcome:	friction	hysterysis	lag	pressure error
606	An aircraft is flying at constant indicated altitude, over a warm airmass The altimeter reading will be:	correct	greater than the real altitude	less than the real altitude	oscillating around the correct altitude
607	CAS is IAS corrected for:	position and instrument error	instrument, pressure and density error	relative density only	compressibility
608	A DGI has;	one degree of freedom & a horizontal spin axis	two degrees of freedom & a vertical	two degrees of freedom & a	one degree of freedom & a vertical spin axis

			spin axis	horizontal spin axis	
609	An aircraft is flying at an indicated altitude of 16,000ft. The outside air temperature is -30° C What is the true altitude of the aircraft?	16,200 ft	15,200 ft	18,600 ft	13,500 ft
610	The main cause of error in a DRMC is:	parallax in the rose	turning	magnetic deviation	latitude
611	QNH is:	the airfield barometric pressure	the setting that will give zero indication on the airfield	the equivalent sea level pressure at the airfield	the setting that will indicate airfield height
612	What is the Schuler period?	21 minutes	84 minutes	1 oscillation in azimuth	63 minutes
613	The vertical reference of a data generation unit is:	horizontal axis with 1 degree of freedom	vertical axis with 1 degree of freedom	horizontal axis with 2 degree of freedom	vertical axis with 2 degree of freedom
614	The torque motor of a gyro stabilised magnetic compass:	precesses the directional gyro	takes its input from the flux valve	moves the heading pointer	moves the Selsyn stator
615	A factor giving an error on a direct indicating compass would be:	crosswinds - particularly on east/west headings	parallax due to oscillations of the compass rose	acceleration on east/west headings	turning through east/west headings
616	A rate integrating gyro is used in:	inertial navigation unit&autopilot system	inertial attitude unit&inertial navigation unit	autopilot system&stabiliser servo mechanism system	rate of turn indicator&inertial navigation unit
617	The errors of a DGI are:	earth rate&transport wander	banking when pitched up&mechanical problems	both a & b	none of the above
618	If the needle and the ball of a Turn & Slip indicator both show right, what does it indicate:	turn to left & too much bank	turn to right & too much bank	turn to left & too little bank	turn to right & too little bank
619	When descending through an isothermal layer at constant CAS, what does the TAS do?	increase at a linear rate	increase at an exponential rate	remain the same	decrease
620	Descending from FL390 at maximum groundspeed, what will the pilot be limited by:	VMo initially then MMo at a specified altitude	MMO initially then VMO at a specified altitude	VNE initially then MMO at a specified altitude	VNO initially then VNE at a specified altitude
621	At constant weight, regardless of altitude, an aircraft always lifts off at a constant:	EAS	TAS	ground speed	CAS
622	VFE is the maximum speed that:	the flaps can be operated	the flaps may be	the flaps may be	the flaps may be

			extended in the take-off configuration	extended in the landing configuration	extended in a specified configuration
623	The white arc on the ASI indicates:	Vs1, at the lower end and VLE at the upper end	Vso at the lower end and VLE at the upper end	Vso at thelower end and VFE at the upper end	Vs1 at the lower end and VFE at the upper end
624	An ASI circuit consists of pressure sensors. The Pitot Probe measures:	total pressure & static pressure	dynamic pressure	static pressure	total pressure
625	If a pitot source is blocked in an ASI, and the drain hole is blocked, but the static source is open, what will happen ?	ASI reading goes to zero	ASI under reads	ASI over reads	ASI behaves like an altimeter
626	In a turn at constant angle of bank, the rate of turn is:	independent of weight and proportional a to TAS	dependant on weight and inversely proportional to TAS	independent of weight and inversely proportional a to TAS	dependant on weight and proportional to TAS
627	The Turn Indicator is a useful gyroscopic instrument. When used in association with an attitude indicator will show:	angular velocity about the yaw axis& angular velocity about true vertical axis	direction of turn& angular velocity about true vertical axis	angular velocity about true vertical axis& speed of turn	angular velocity about the yaw axis & direction of turn
628	If an aircraft, fitted with a DRMC, takes off on a westerly heading, in the northern hemisphere, the DRMC will indicate:	a turn to the north	oscillates about west	no turn	a turn to south
629	When turning through 90° at constant attitude and bank, a classic Artificial Horizon indicates:	nose up and correct angle of bank	attitude and bank angle are correct	nose up and bank angle too low	nose up and bank angle too high
630	The factors which will affect a Turn Indicator are:	aircraft speed & aircraft weight	angle of bank & aircraft speed	angle of bank & aircraft weight	all of the above
631	The properties of a Turn Indicator are:	One degree of freedom, & spin axis horizontal	two degrees of freedom, & spin axis parallel to the yaw axis	One degree of freedom, & spin axis in the longitudinal plane	two degrees of freedom , & spin axis horizontal
632	A gravity erector system corrects errors on a:	DGI	artificial horizon	turn indicator	RIMC
633	In a Gyro magnetic Compass the flux gate transmits information to the:	heading indicator	amplifier	error detector	erecting system
634	VNO is the max speed which:	the pilot can fully deflect the controls.	should only be exceeded in still air and with caution.	should never be exceeded.	must not be exceeded for flap/gear extension
635	If the static vent becomes blocked on an unpressurised a/c, what could you do?:	open the window.	break the VSI glass.	compute altitude mathematically.	Select standby pitot source
636	What does the "barbers pole" on an ASI	VMO& altitude.	VMO& temperature.	VNO	VNE

	indicate?:				
637	On board a/c, true altitude shown from:	standard atmosphere.	pressure altitude.	density altitude.	temperature altitude.
638	On a turn and slip indicator, needle to the left and ball to the right indicates:	turn to the right, not enough bank.	turn to the left, too much bank.	turn to the left, not enough bank.	turn to the right, too much bank.
639	What is density altitude:	altitude in the standard atmosphere at which the prevailing density is equal to the density in the standard atmosphere	pressure altitude corrected for prevailing temp.	temperature altitude.	pressure corrected
640	A radio altimeter is:	ground based and measures true altitude.	ground based and measures true height.	a/c based and measures true altitude.	a/c based and measures true height.
641	An a/c is travelling at 120 kts, what angle of bank would be required for a rate 1 (one) turn:	30°	12°	18°	35°
642	An a/c is travelling at 100 kts forward speed on a 3° glideslope. What is its rate of descent?:	500 ft/min.	300 ft/min.	250 ft/min.	600 ft/min.
643	If the pitot tube is leaking (and the pitot drain is blocked) in a non-pressurised a/c, the ASI will:	under-read.	over-read.	over-read in the climb, under-read in the descent.	under-read in the climb, over-read in the descent.
644	An RMI rose is mechanically stuck on 090 degrees. The ADF pointer indicates 225 degrees. What is the relative bearing to the beacon?	225 degrees.	135 degrees.	Cannot be determined.	000 degrees.
645	Using a classic Artificial Horizon, the a/c performs a right turn through 270 degrees at a constant angle of bank and rate of turn. The indication is:	Nose up, too much bank.	Nose up, not enough bank.	Nose up, wings level.	Bank and pitch correct.
646	In a DGI what error is caused by the gyro movement relative to the earth?	Earth Rate	Transport Wander	real wander	latitude error
647	In a right turn while taxiing, the correct indications are:	Needle left, ball right.	Needle left, ball left.	Needle right, ball right.	Needle right, ball left.
648	An aircraft is taking of on a runway heading 045°, in still air, with a compass having 0° deviation The runway is on an agonic line What are the northerly turning errors (northern hemisphere) ?	compass moves to less than 045°	compass moves to more than 045°	Compass stays on 045° if wings are kept level	compass remains on 045°

649	True heading can be converted into magnetic heading using a compass and:	A map with isogonal lines.	A map with isoclinal lines.	A deviation card.	A deviation curve
650	At sea level ISA, TAS:	Equals CAS	Is greater than CAS	Is less than CAS	None above is correct.
651	What will the altimeter read if the layers beneath the aircraft are all colder than standard?	read lower than the real altitude	read higher then the real altitude	read the correct altitude	readings will fluctuate
652	The flux valve in a RIMC	is supplied with AC current (usually 487.5 Hz).	is fed with DC.	is made of perm-alloy magnetic steel.	has its own self exciter unit.
653	An artificial horizon has:	1 degree of freedom and an horizontal axis.	2 degree of freedom and an horizontal axis.	1 degree of freedom and a vertical axis.	2 degree of freedom and a vertical axis.
654	The rigidity of a gyro is improved by:	Increasing RPM and concentrating the mass on the periphery of the rotor.	Increasing RPM and concentrating the mass at the hub of the rotor.	Decreasing RPM and concentrating the mass on the periphery of the rotor.	Decreasing RPM and concentrating the mass at the hub of the rotor.
655	What is the speed of sound at sea level ISA	644kts.	661 kts.	1059 kts	583kts.
656	What is the speed of sound at 25,000 ft and -28 degrees C.	624kts.	618kts.	601 kts	610kts.
657	What is the speed of sound at 30,000 ft and -40 degrees C.	562kts.	595kts.	590kts.	661 kts.
658	A compass swing is used to:	align compass north with magnetic north.	align compass north with true north.	align magnetic north with true north.	get true north and lubber line aligned.
659	The TAT probe measures TAT by:	TAT = SAT + kinetic heating.	TAT = SAT - heating due to compressibility.	TAT = SAT - kinetic heating.	TAT = SAT + heating due to compressibility.
660	If a pitot tube and drains are blocked at altitude by icing, during a descent the ASI will:	read constant airspeed.	under read.	over read.	show zero.
661	The frequency band used for a Radio Altimeter is:	SHF	VHF	UHF	LF
662	What is the purpose of the latitude nut in a DGI ?	to correct for latitude error	to correct for transport wander	to correct for earth rate	to correct for coriolis error
663	Total Air Temp is always _____ than Static Air Temp and the difference varies with _____	warmer, altitude.	colder, altitude.	warmer, CAS.	colder, CAS.
664	In a slightly banked turn, the turn needle will indicate:	roll rate.	rate of yaw.	angular velocity about the vertical axis.	rate of pitch.
665	What are the upper and lower limits of the yellow arc on an ASI?	lower limit VLO and upper limit VNE	lower limit VLE and upper limit VNE	lower limit VNO and upper limit VNE	lower limit VLO and upper limit VLE

666	What does the blue line on an ASI of a twin propeller engined aircraft indicate ?	VYSE	VNOS	V FE	VMCA
667	The gravity erecting device on a vertical gyro is used on which instrument;	directional gyro unit	turn indicator	artificial horizon	gyromagnetic device
668	In a VSI lag error is improved by:	bi-metalic strip	two	use of an accelerometer system	return spring
669	An aircraft fitted with a DRMC is landing in a southerly direction, in the Southern Hemisphere. What indications will be seen on the DRMC ?	180° turn to east	no apparent turn	turn to west	All above are correct
670	What is the maximum drift of a gyro, due to earth rate:	90° per hour	180° per hour	15° per hour	5° per hour
671	When turning through 180° at constant attitude and bank, a classic Artificial Horizon indicates:	nose up and correct angle of bank	attitude and bank angle are correct	nose up and bank angle too low	nose up and bank angle too high
672	What is the Schuler period?	48 minutes	84 seconds	48 seconds	84 minutes
673	You are flying at a constant FL 290 and constant mach number. The total temperature increases by 5°. The CAS will:	remain approximately constant	increase by 10 kts	decrease by 10 kts	will increase or decrease depending on whether you are above or below ISA.
674	An aircraft turns from south-west to south-east when situated at 45°N, what heading should you roll out on if using a DRMC ?	130°	115°	140°	155°
675	What is SAT ?	relative temperature measured in K	differential temperature measured in K	relative temperature measured in °C	ambient temperature measured in °C
676	Where is the earth rate wander, and the transport wander of a gyro equal to zero?	North Pole	Equator	45° N	45° S
677	What happens when the static pressure supply, to an altimeter, becomes blocked during a descent ?	reduces to zero	overreads	under reads	indicates altitude at which blockage occurred
678	What happens when the static vent supplying an ASI is blocked, and the ram air inlet remains clear ?	ASI acts opposite to an altimeter	ASI always over reads / reads a higher value	ASI always under reads / reads a lower value	ASI acts like an altimeter
679	In a left turn while taxiing, the correct indications are:	Needle left, ball right.	Needle left, ball left.	Needle right, ball right.	Needle right, ball left.
680	VNE is defined as:	the speed which must not	the speed above which	the speed which must	the maximum speed for

		be exceeded in still air, or without caution	the landing gear may not be extended	never be exceeded	normal flap extension to be selected
681	In a left turn, the ball of the turn co-ordinator is out to the right, what corrective action is required?	more right rudder	less right bank	more left bank	more left rudder
682	In a gyro magnetic compass, where does the torque motor get its information from'?	the flux gate	error detector	the rotor gimbal	amplifier
683	What are the advantages of a laser gyro compared to a conventional gyro ?	has a longer cycle life	takes longer to set up/ spin up	uses more power	takes longer to align
684	Which instrument has a 2° rotation in the horizontal axis?	artificial horizon	flux detector	directional gyro indicator	turn indicator
685	The maximum drift error sensed by an uncompensated DGI will be:	15° per hour	30° per hour	45° per hour	60° per hour
686	The green arc on the ASI is used to identify which speed range:	Vso to VNO	VS1 to VFE	VS1 to V NO	VS1 to VLO
687	Pressure altitude may be defined as:	lowest forecast regional pressure	pressure measured in the standard atmosphere	altitude indicated with QFE set on the altimeter	altitude indicated with QNH set on the altimeter
688	What is the effect on an altimeter reading if variations in static pressure occur near to the pressure source ?	a change in hysterysis error	a change in the instrument error	a change in the position error	a change in the compressibility error
689	What is the value of the angle of magnetic dip at the South Pole ?	0°	45°	90°	60°
690	A standby artificial horizon must have the following properties:	a remote gyro &its own power supply	only to be used in emergency	both a & b	its own power supply & its own gyro
691	The single most significant item which makes a servo altimeter more accurate is:	electromagnetic pick-off	logarithmic scale	temperature compensated spring	multiple pointers
692	Which of the following gyro instruments has one degree of freedom?	artificial horizon	turn indicator	directional gyro	slaved gyro compass
693	If a large aircraft is slide slipped to starboard, and the port static vent is blocked, what will the altimeter read ?	under read	read correctly	Over read	fluctuate
694	The right static vent is blocked, when the aircraft yaws to the right. Does the altimeter:	Over read	under read	unaffected	None of the above
695	If the radio altimeter fails:	height information disappears	aural warning given	radio alt flag, red lamp, and aural	radio alt flag and red lamp activates.

				warning given	
696	VNO is defined as:	maximum structural cruising speed	never exceed speed	manoeuvring speed	maximum operating speed
697	If the left static vent is blocked, and the right static vent is clear. What will the altimeter read if the aircraft maintains constant level?	read correctly whatever the situation	under read	if side slipping to the left, altimeter will over read.	if side slipping to the right, altimeter will over read.
698	An aircraft is flying at constant indicated altitude, over a cold airmass. The altimeter reading will be:	greater than the real altitude	standard altitude	same as the real altitude	less than the real altitude
699	An aircraft is accelerating to take-off on a runway with a QDM of 045°. Which way does the DRMC move, if the aircraft is in the Northern Hemisphere ?	less than 45°	more than 45°	correct if wings are level	correct
700	When turning right onto north, through 90°, what heading on your DIC should you roll out on, if the aircraft is in the Northern Hemisphere?	020°	360°	340°	320°
701	What does a radio altimeter, for an aircraft in the landing configuration, measure:	height of aircraft wheels above the ground	height of the aircraft above the ground	altitude of the aircraft	altitude of the aircraft wheels
702	Why is a servo altimeter better than a sensitive altimeter/	it has a pick-off coil	it is more accurate at low level	it has ambient pressure in the capsule	it is fitted with a knocking device
703	In an altimeter what is fed to: the capsule (i) and to the case (ii)? (i) (ii)	vacuum static input	static input vacuum	pitot input static input	total input ambient input
704	What principle does the radio altimeter work on ?	pulse modulation	amplitude modulation	pulse modulation and carrier wave	frequency modulation and carrier wave
705	What is indicated on the ASI when the static vent blocks during a descent ?	under reads	reads correctly	over reads	reads zero
706	A rate integrating gyro is used in:	inertial attitude unit	autopilot system	inertial navigation system	a rate of turn indicator
707	The error in a Directional Gyro due to the earth's rotation, at a mean latitude of 45° N, will cause the spin axis to move by:	10.6° Clockwise	10.6° Anti-clockwise	7.6° Clockwise	7.6° Anti-clockwise
708	What are the components of a Ring Laser Gyro ?	mirrors and 2 cavities	2 anodes and 2 cathodes	2 beams of laser light	horizontal gryo axis and 1 degree of freedom
709	Where on the earth's surface is the earth	15°	30°	0°	90°

	rate drift of a DGI equal to 15.04° per hour ?				
710	The pendulous type correction detector fitted to the DGI provides:	torque on the sensitive axis	two torque motors on the horizontal axis	pendulous internal nozzle on the outer gimbal	one torque motor
711	An aircraft is fitted with two altimeters. One is corrected for position error, the other is not corrected for position error	ATC will receive erroneous information of flight level	at high speed the non-compensated altimeter will show a lower altitude	provided that the ADC is working normally, there will be no error to either altimeter	at high speed the non-compensated altimeter will show a higher altitude
712	Density altitude is defined as:	the altitude of the airfield elevation corrected for Lapse Rate	the altitude reading on the altimeter which has QNH set on it	the altitude corresponding to the standard atmosphere compensated for ambient density	the altitude showing on the altimeter with the lowest regional QNH set
713	The pitot tube of an ASI gives a direct reading of:	static pressure	total & static pressure	total pressure	dynamic pressure
714	When descending from FL230 to FL50 at maximum speed, the limitations which apply are:	VMO	VMO then MMO	MMO then VMO	MMO
715	The pressure measured at the forward face of the Pitot probe is:	dynamic pressure	static pressure	total pressure	total pressure + static pressure
716	What has inputs from the flux valve;	error detector	heading indicator	amplifier	precession motor
717	Sound propagates at a speed which depends only on;	density	temperature	temperature & pressure	pressure
718	What aircraft system uses a frequency of 4,400 MHz ?	SSR	radio altimeter	weather radar	ATC radar
719	A low altitude Radio Altimeter, used in precision approaches, has the following characteristics:	1540MHz to 1660 MHz range and an accuracy of +/- 2ft between 0 and 500ft	frequency modulation and height range between 0 and 5,000ft	frequency modulation and an accuracy of +/- 2ft between 0 and 500ft	pulse transmissions and frequency modulation
720	A modern low altitude Radio Altimeter uses the principle of:	pulse modulated waves, with the difference between the transmitted and received waves displayed on a circular screen.	Frequency modulated waves, where the difference between the transmitted wave and the received wave is measured.	Wave modulation, with frequency shift due to Doppler effect of the ground reflected wave being measured	Triangular wave, with the frequency shift of the ground reflected wave being measured
721	The frequencies used in a low altitude Radio Altimeter are:	5 GHz to 6 GHz	5400 MHz and 9400 MHz	4200 MHz to 4400 MHz	2700 MHz to 2900 MHz

722	The difference between Magnetic North and True North can be derived by:	deviation curve	deviation card	map with isoclinic lines	map with isogonal lines
723	A direction gyro gets its directional information from:	air data computer	direct reading magnetic compass	flight director	flux valve
724	What is the principle of operation of a VSI:	differential pressure across a capsule	total pressure in a capsule	static pressure in a capsule	dynamic pressure in a capsule
725	In a Remote Indicating Compass, what component feeds the Amplifier?	gyro precession signal	flux valve	annunciator	error detector
726	An aircraft turns right, through 90o, onto North, at 48N, using a direct indicating compass. The aircraft is turning at rate 2. What heading should the aircraft roll out on?	010°	030°	330°	350°
727	What is the normal operating range of a low altitude Radio Altimeter?	0 to 2,500ft	50ft to 2500ft	0 to 10,000ft	0 to 7,500ft
728	What is a radio altimeter used for?	to determine aircraft height above mean sea level	to determine aircraft height above ground level	to determine pressure altitude	to detennine aircraft altitude
729	You commence a rate 2 turn from south-east to south-west, in the Northern Hemisphere. On what heading do you stop the turn ?	240°	255°	235°	205°
730	A directional gyro is valid only for a short period of time. The causes of this inaccuracy are;	earth rotation , a/c motion over the earth & gyro mass	earth rotation, a/c motion over the earth & mechanical defects	earth rotation , longitudinal accelerations & a/c motion over the earth	all of the above
731	A VMO / MMO alarm system, on an airline aircraft, is fitted with an aneroid capsule which is:	subjected to static pressure and an anemometer subjected to dynamic pressure	subjected to dynamic pressure and an anemometer subjected to static pressure	subjected to static pressure and an anemometer subjected to static pressure	subjected to dynamic pressure and an anemometer subjected to dynamic pressure
732	An aircraft, in the southern hemisphere, is decelerating to land on a westerly heading. The direct reading magnetic compass will indicate:	an apparent turn to north	an apparent turn to south	correctly	an oscillation about west
733	What is the input to a VSI ?	static pressure	differential pressure	total pressure	dynamic pressure
734	The component(s) used to align an inertial strap-down unit in the horizontal	Accelerometers and gyroscopes	Accelerometers	Flow inductors	Gyroscopes

	plane is/are:				
735	A ring laser gyro consists of ;	A gyro with 2 degrees of freedom	Two moving cavities using mirrors	A laser split into two beams	Two electrodes (anodes and cathodes)
736	The Directional Gyro Indicator (DGI) can:	not align itself with magnetic north	can automatically align itself with magnetic north	have 1° of freedom	have 2° of freedom
737	The Pitot tube comprises a mast to position it below the skin of the aircraft for:	avoid disturbance from aerodynamic flow about the aircraft	position it outside the boundary layer	anti-ice protection	easy access for maintenance
738	Using a classic Artificial Horizon, the a/c performs a right turn through 360 degrees at a constant angle of bank and rate of turn. The indication is:	Nose up, too much bank.	Nose up, not enough bank.	Nose up, wings level.	Bank and pitch correct.
739	Find the correct answer :	The inner gimbal of V.G show roll.	The outer gimbal of V.G show pitch.	The inner gimbal of V.G show pitch	The V.G gives pitch while the D.G gives roll and heading information.
740	In the turn and slip indicator :	Rate gyro is used for turn indication while gravity is used for slip indication.	Rate gyro is used for slip indication while gravity is used for turn indication.	Rate gyro is used for turn indication while gravity is used for bank indication.	Rate gyro is used for bank indication while gravity is used for turn indication.
741	The rate gyro used in a turn indicator has its axis aligned in :	The longitudinal axis	The athwartship axis	The vertical axis	The fore and aft axis.
742	In a capacitor type fuel quantity indicator :	The capacitance decrease if fuel is decreased.	The capacitance increase if fuel is decreased.	The capacitance will change with fuel quantity and temperature.	None of the above.
743	If an aircraft turns East from Northerly heading in the northern hemisphere,	The Easterly deviation increase with no change in dip.	The Westerly deviation increase with no change in dip.	The dip will increase.	The dip will decrease.
744	An accelerometer usually measures acceleration :	In one direction only.	In two directions at a time.	In all three directions (X,Y,Z) at a time.	none of the above
745	The magnetic equator is :	An agonic line.	An isoclinic line.	An aclinic line.	An isogonic line.
746	Compass deviation is due to :	Aircraft magnetic field.	Earth's magnetic field.	Magnetic storm.	None of the above.
747	A gyro will not precess	when an external force is applied perpendicular to the spin axis.	when the rotor is unbalanced but there is no gravitational force.	when there is friction in the bearings but no external force is present.	when an external force is applied along the spin axis.
748	The strength of the horizontal	varies with the sine of dip.	does not vary with	varies with cosine of	vary with latitude but

	component of earth's magnetic field :		latitude.	dip.	does not vary with the cosine of dip.
749	If in an altimeter, the setting (mBar) is decreased the reading of the altimeter will :	increase	decrease	remain unaffected	become unstable.
750	The cause of apparent precession is :	Earth's rotation.	Change of latitude and longitude.	Both (a) and (b) are correct.	Mechanical imperfections of the gyro.
751	During entry of initial co-ordinates, the inertial navigation system :	accepts wrong latitude.	accepts wrong longitude.	accepts both wrong latitude and longitude.	does not accept wrong latitude or longitude.
752	When an aircraft flies 2 dots below glideslope, the GPWS :	gives a "GLIDESLOPE" hard warning.	gives a "GLIDESLOPE" soft warning.	does not give any "GLIDESLOPE" warning.	does not give any GPW warning.
753	Find the incorrect statement :	The amplifier of an AP strengthens the signal from the detector to operate the servometer.	The servometer acts as a muscle to move the control surfaces.	The detector detects the position of the control surfaces.	The detector detects the change in attitude of the aircraft.
754	The auto pilot when engaged :	can maintain aircraft heading and altitude.	can capture a new selected heading.	can capture a new selected altitude.	All of the above are correct.
755	The auto pilot :	relieves the human pilot of flying fatigue.	assists in navigation with the help of other instruments.	improves safety but does not replace the human pilot.	All of the above are correct.
756	The flight director command bars on the display shown are commanding	fly up and left	fly down and right	fly down and left	fly up and right
757	Where are the flight director modes displayed ?	PFD	ND	EICAM	FD control panel
758	The autopilot is in heading select mode, and the aircraft is flying on a heading of 270°. If you change heading to 360°, the flight director command bars will;	roll command bar goes full deflection right and then doesn't move until the aircraft heading is within 30° of the selected heading	roll command bar moves to right and centres when AFDS angle of bank to intercept has been achieved	the heading command bar will disappear and the heading hold will disengage	roll command bar moves to the right and then progressively returns to the centre as the deviation from the selected heading reduces
759	What are the basic functions of an autopilot?	Heading hold &Speed hold	Maintain pitch attitude & Maintain wings level	Maintain wings level & Altitude hold	all of the above
760	At 50 feet agl during an autoland, what happens to the glideslope signal ?	continues to be actioned	is disconnected	is factored for range	is used to flare the aircraft
761	What is the wavelength of an ILS signal	Centimetric	Hectometric	Metric	Decimetric

762	The interception of the localiser beam by the autopilot is:	on a constant magnetic course	a mode using an interception verses range computation	a mode using an interception verses radio deviation law	on a constant heading
763	Engagement of the autopilot is not possible when:	electrical supply is faulty&there is a synchronisation fault	the turn control knob is not set to centre off	there is a fault in the attitude reference unit	all of the above
764	On which instrument are the flight director bars normally present?	Primary EICAS	ADI	ND	EHSI
765	What happens at 50ft whilst carrying out an autolanding?	glideslope and localiser disconnect and aircraft continues to land	radio altimeter controls the rate of descent	radio altimeter controls the angle of attack	glideslope disconnects and aircraft continues descent
766	If you have selected a heading of 180° and are flying aircraft on heading of 160° to intercept the correct course, the ADI vertical bar be central when?	only if aircraft is subject to 20° port drift	only if aircraft is subject to 20° starboard drift	cannot be centralised	will only be central when flying correct attitude to intercept desired heading
767	If the autopilot is selected to VOR mode, what happens if the aircraft flies over the cone of confusion`?	Temporarily follows current heading until exiting the cone of confusion	VOR disengages and Heading hold engages	The pilot must select an alternate roll mode	The pilot manually flies the aircraft following flight director roll commands.
768	The autopilot disconnects (or the autoland is completed) at:	100 ft	decision height	flare	roll out
769	The control law in a fly-by-wire system is a relationship between:	how the pilot's control demands are translated into control surface movements.	input and output at the amplifier level respectively control the deviation data	computer input deviation data and flap position modification	the versine signal between the ailerons and elevators
770	What are the autopilot minimum requirements in order to fly single pilot operations in IFR conditions or at night ?	Two axis autopilot with altitude hold and heading hold.	Two axis autopilot with altitude hold, heading hold, VOR tracking and Alt acquire	Single axis autopilot with Altitude hold only	Single axis autopilot with Heading select and VS
771	When flying level in the cruise the ..... holds height and the ..... holds the speed:	Autopilot, Autopilot	Auto-throttle, Auto-throttle	Auto-throttle, Autopilot	Autopilot, Auto-throttle
772	At what height during a semi-automatic landing is the autopilot disengaged:	100 ft	45 ft	Decision height	14 ft
773	At the missed approach point the TOGA switch on the throttles is depressed. Which of the following statements are correct :	GA power selected & Pilot manually fly's manoeuvre	Autopilot selects max. power & Pilot manually fly's manoeuvre	Autopilot selects max. power & Autopilot fly's the GA manoeuvre	GA power selected & Aircraft automatically cleans up

774	If a Go-Around is initiated from an auto-approach :	the pilot retracts the flap and the landing gear to reduce drag & the autopilot monitors the climb	the auto throttle selects maximum power as soon as the TOGA switch is pressed & the pilot performs the climb	both a & b	none of the above
775	An auto-land system which can continue to automatically land the aircraft after a single failure is called :	Fail passive	Fail Soft	Fail Safe	Fail active
776	Where can the pilot look to see the autothrottle mode ?	PFD	overhead panel	throttle control panel	EICAS
777	Where can the pilot look to see the thrust limit mode ?	PFD	Overhead panel	Throttle control panel	Primary EICAS
778	The autopilot is engaged with no modes selected. What is the autopilot providing:	wing leveling	altitude hold	Auto-stability with auto-trim	LNAV and VNAV
779	When is an Autoland procedure complete	At the markers	At the beginning of the ground roll	At decision height	At the flare
780	During aCAT2 approach, what is providing the height information	Capsule stack	Radio Altimeter	Captain's barometric altimeter	Central Air Data Computer
781	Autoland Flare is initiated at	1500 ft	330 ft	50 ft	5 ft
782	An autopilot capable of altitude hold and heading hold is a minimum requirement for:	Single pilot operation in VMC and IMC.	Single pilot operation under IFR and at night.	Aircraft over 5700kg.	Dual pilot operation (in IFR).
783	During a fully automatic landing the autopilot:	and the auto-throttle control the approach at least until the flare.	and the auto-throttle control the approach at least until the roll-out.	and the auto-throttle control the approach at least until decision height.	controls the approach (at least) until the roll-out, the pilot controls the power.
784	A landing is considered to be Automatic when:	autothrottle maintains speed until Decision Height, and then disengages	autothrottle disengages thrust at 50ft & the flare is automatic	autopilot flies the ILS until the flare & the flare is automatic	none of the above
785	In an autopilot system, modes for stabilising the a/c include which of the following:	Yaw damper , Pitch attitude holding & ASI & Mach hold	Yaw damper , Pitch attitude holding & Horizontal wing holding	Yaw damper , Horizontal wing holding & Altitude holding	Pitch attitude holding , ASI & Mach hold & Altitude holding
786	In an autopilot system, a/c flight path modes include which of the following:	Pitch attitude holding , Horizontal wing holding & Inertial heading holding	Pitch attitude holding , Horizontal wing holding & ASI and Mach hold	Horizontal wing holding , Inertial heading holding &	VOR axis holding ,Inertial heading holding & ASI and Mach hold

				Yaw damper	
787	An autopilot system whereby if one A/P fails cannot carry out an auto-land is called fail	passive.	safe.	operational.	redundant.
788	In a yaw damper:	ailerons are moved in proportion to Mach No.	ailerons are moved in proportion to rate of angular velocity.	rudder is moved in proportion to Mach No.	rudder is moved in proportion to rate of angular velocity.
789	LOC ARMED lights up on the annunciator, this means:	localiser beam captured.	localiser armed and awaiting capture.	localiser alarm is on.	ILS is captured
790	What is the most basic function of an autopilot?	altitude hold	heading hold	wing leveller	altitude and heading hold
791	What does the autopilot pitch / rotate around?	centre of gravity	manoeuvre point	centre of pressure	neutral point
792	During a semi-automatic landing	the A/P is disengaged at DH having followed the ILS.	the A/T flies airspeed down to approximately 30 ft and automatically disengages.	the A/P flies the approach and flare and roll-out.	the A/T flies approach speed and disengages automatically at DH
793	If only a single A/P is used to climb, cruise and approach; following a failure:	it is fail passive with redundancy.	it is fail operational and will not disconnect.	it is fail soft and will not disconnect.	it is fail safe and will disconnect.
794	In heading select the autopilot delivers roll commands to the controls to bank the aircraft:	proportional to TAS, but not beyond a specified maximum.	Proportional to the deviation from the selected heading.	Set bank of 15 degrees & Proportional to the deviation from the selected heading	both a and b
795	Auto-trim is fitted to an autopilot:	To provide control about lateral axis.	To prevent snatching on disengaging A/P.	To prevent snatching on engaging A/P	To correct for Mach tuck
796	What is the purpose of the synchronisation in an autopilot (list)	Prevents snatch on disengagement & Pevents snatch on engagement	Prevents snatch on disengagement & Cancels rudder control inputs	Pevents snatch on engagement & May not allow the autopilot to engage if unserviceable	Cancels rudder control inputs & May not allow the autopilot to engage if unserviceable
797	When operating with the autopilot in ALT hold mode what happens if the Captain's barometric altimeter pressure setting is increased	ALT hold disengages	Nothing	The aeroplane will climb	The aeroplane will descend
798	TO/GA is engaged	automatically at GS capture	automatically when an autopilot fails	by the pilot pressing a button on or near the	by the pilot selecting flare

				throttles	
799	On crossing the cone of confusion of a VOR when in VOR mode of the autopilot what will happen to the roll channel	Always coupled to the selected VOR radial	Temporarily disconnected	Damped by a trim input from the lateral trim system	Temporarily switches to heading mode
800	The function of autotrim is	to synchronise the longitudinal loop	to relieve forces on the autopilot servomotor prior to hand over	to react to altitude changes in ALT HOLD mode	to relieve forces on the control column before hand over
801	What is the purpose of the wing main spar	To withstand bending and torsional loads	To withstand compressive and torsional loads	To withstand compressive and shear loads	To withstand bending and shear loads
802	What is the purpose of wing ribs	To withstand the fatigue stresses	To shape the wing and support the skin	To house the fuel and the landing gear	To provide local support for the skin
803	What is the purpose of stringers	To absorb the torsional and compressive stresses	To produce stress risers and support the fatigue metres	To prevent buckling and bending by supporting and stiffening the skin	To support the primary control surfaces
804	The airframe structure must remain substantially intact after experiencing:	The design ultimate load times a 1.5 safety factor	The design limit load plus the design ultimate load	Three times the safety factor	The design limit load times a 1.5 factor of safety
805	In the construction of airframes the primary purpose of frames or formers is to:	Provide a means of attaching the stringers and skin panels	Oppose hoop stresses and provide shape and form to the fuselage	Form the entrance door posts	Support the wings
806	Regarding a safe life structure:	Has a programmed inspection cycle to detect and rectify faults	Is changed before its predicted life is reached	Both a and b	None of the above
807	A fail safe structure	Is changed before its predicted life is reached	Has a programmed inspection cycle to detect and rectify faults	Is secondary structure of no structural significance	all of the above
808	The skin of a modern pressurized aircraft	Is made up of light alloy steel sheets built on the monocoque principle	Houses the crew and the payload	Provides aerodynamic lift and prevents corrosion by keeping out adverse weather	Is primary load bearing structure carrying much of the structural loads
809	The primary purpose of the fuselage is to:	Support the wings	House the crew and payload	Keep out adverse weather	Provide access to the cockpit
810	Station numbers (Stn) and water lines (WL) are:	A means of locating airframe structure and components	Passenger seat locations	Runway markings for guiding the aircraft to the terminal	Compass alignment markings

811	Flight deck windows are constructed from	An amalgam of strengthened glass and vinyl with rubber pressure seals	Strengthened glass with shock absorbing clear vinyl interlayer and rubber pressure seals	Strengthened clear vinyl with an electrical conducting coat for de-icing and rubber pressure seals	Strengthened glass with rubber seals
812	A cantilever wing:	Is externally braced with either struts and/or bracing wires	Is supported at one end only with no external bracing	Has both an upper an lower airfoil section	Folds at the root section to ease storage in confined spaces
813	A torsion box:	Is a structure within the fuselage to withstand compression, bending and twisting loads.	Is a structure formed between the wing spars, skin and ribs to resist bending and twisting loads	Is a structure within the wing for housing the fuel tanks, flight controls and landing gear	Is a structure designed to reduce the weight
814	A lightening hole in a rib	Prevents lightning strikes damaging the fuselage	Provides a means of passing cables and controls through a pressure bulkhead	Collects and disposes of electrical charges	Lightens and stiffens the structure
815	A damage tolérant structure	Has degree of structural strength redundancy spread over a large area	Is light, non load bearing structure, damage to which will not adversely affect the aircraft	Is replaced when it reaches its predicted life	Need not be repaired until the aircraft undergoes deep maintenance
816	Aircraft structures consists mainly of	Light alloy steel sheets with copper rivets and titanium or steel materials at points requiring high strength	Magnesium alloy sheets with aluminium rivets and titanium or steel at points requiring high strength	Aluminium alloy sheets and rivets with titanium or steel materials at points requiring high strength	Aluminium sheets and rivets with titanium or steel materials at points requiring high strength
817	The Maximum Zero Fuel Mass (MZFM) of an aircraft is	The maximum permissible take off mass of the aircraft.	The maximum permissible mass of an aircraft with no useable fuel	The maximum permissible mass of an aircraft with zero payload	The maximum permissible landing mass
818	One of the following devices is used to divert the spanwise flow of air to chordwise over the top surface of an aerofoil:	Vortex generators.	Wing fences	Wing let	Leading edge flap
819	The wing tip vortices is less:	when pressure difference is less	when the angle of attack is low	when the aircraft speed is high	both a) and b) are correct

820	The purpose of the aileron trim tab is to :	maintain straight and level flight without pressure on the control wheel.	reposition the aileron to maintain wing level	maintain wing level in case of primary control failure.	none of the above
821	Effect of tail plane is considered mainly in maintaining:	Lateral stability	Longitudinal stability	Directional Stability	all the above are correct.
822	As the airspeed increases:	The wing shock-wave moves backward	The wing shock-wave moves forward	The wing shock-wave remains in the same position	The wing shock-wave suddenly disappears
823	An aircraft using flaps can land at lower speed because of:	pitching up moment	additional lift.	increasing drag and decreasing lift.	flap acts as an air brake.
824	An aircraft integral fuel tank is:	removable from the aircraft.	a self sealing tank	a part of the aircraft structure	usually located in the bottom of the fuselage
825	In semi monocoque fuselage primary bending loads are taken by:	bulkhead	formers	longerons	stringers
826	The function of the spoilers is to:	break the airflow and destroy lift	create more lift	create a smoother airflow over the wing	decrease airspeed during steep descent
827	A force of 100N is applied to 2 separate jacks, the area of one is 0.02M² and the other is 0.04m²:	The smaller jack will exert a pressure of 2000Pa and the larger 4000 Pa	The smaller jack will exert a pressure of 5000 Pa and the larger 2500 Pa	Both jacks will move at the same speed.	Both have the same load.
828	A pre charge pressure of 1000 bar of gas is shown on the accumulator gauge. The system is then pressurized to 1500 bar, so the accumulator will read:	500 bar	1000 bar	1500 bar	2500 bar
829	The pressure gauge of a hydraulic system provides information regarding the pressure of:	the air in the accumulator.	the air and hydraulic fluid in the system.	the proportional pressure in the system.	the hydraulic fluid in the system.
830	A shuttle valve:	is used to replace NRVs.	allows two supply sources to operate one unit	allows one source to operate two units	acts as a non-return valve
831	Def. Stan 91/48 is ---------- and is ---------- based:	red, mineral	red , synthetic	green, mineral	purple, synthetic
832	A restrictor valve:	is used to restrict the number of services available after loss of system pressure.	controls the rate of movement of a service	controls the rate of build up of pressure in the system	controls the distance a jack moves
833	With a hydraulic lock there is:	flow, but no jack movement	no flow but jack continues to move	no flow, jack is stationary	constant flow

			under gravitational effects.		
834	The hydraulic fluid is changed, but the wrong fluid is replaced. This would lead to:	high operating fluid temperature	system failure from leaks and blocked filters, high temp and possible corrosion.	seal damage and jack corrosion	normal operation
835	Accumulator floating piston:	pushes the fluid up when being charged.	pushes the fluid down when being charged	provides a seal between the gas and fluid	prevents a hydraulic lock
836	A relief valve:	relieves below system pressure.	maintains pressure to a priority circuit.	relieves at its designed pressure.	prevents excessive pressure through increased fluid temperature.
837	The primary purpose of a hydraulic reservoir is:	to compensate for leaks, displacement and expansion.	to allow a space into which spare fluid may be stored.	to indicate system contents.	to maintain fluid between a jack and the accumulator.
838	With air in the hydraulic system you would:	ignore it because normal operation would remove it.	bleed the air out of the system.	allow the accumulator to automatically adjust itself.	expect it to operate faster.
839	The pressure filter in a hydraulic system:	filters the fluid returning to the tank.	is fitted down stream of the pump.	can be by passed when maximum flow is required.	clears the fluid as it leaves the reservoir.
840	Pascal's law states that	pressure is inversely proportional to load	liquid is compressible	oxygen can be used to charge the accumulators.	applied force acts equally in all directions.
841	A constant pressure hydraulic pump is governed by:	an automatic cut out.	engine RPM.	a control piston.	a swash plate that senses the fluid temperature.
842	A high pressure hydraulic pump:	needs a positive fluid supply.	does not need a positive fluid supply.	outlet pressure is governed by centrifugal force.	does not need a cooling fluid flow.
843	Case drain filters are	fitted to prevent debris from the reservoir reaching the system	designed to allow hydraulic pump lubricating fluid to drain to atmosphere	to enable pump lubricating fluid to be used to monitor pump condition	fitted in the reservoir outlet
844	The purpose of an accumulator is to:	relieve excess pressure.	store fluid under pressure.	store compressed gas for tyre inflation.	remove air from the system.
845	With a one way check valve (NRV):	flow stops when input pressure is greater than	flow stops when the thermal relief valve off	flow starts when input pressure is less than	flow stops when input pressure is less than

		output pressure.	loads the hand pump.	output pressure.	output pressure.
846	A restrictor valve is physically fitted in the:	u/c up line and flap up line.	u/c down line and flap up line.	u/c down line and flap down line.	supply line to the a/c retraction actuator.
847	In the case of a failure of a cut-out valve:	a full flow relief valve is fitted down stream of it.	a full flow relief valve is fitted upstream of it.	a full flow relief valve is not required.	the terminal pressure will be controlled by adjusting the pump RPM.
848	Hydraulic pressure of 3000Pa is applied to an actuator, the piston area of which is 0.02 and the same pressure is exerted on actuator whose area is 0.04	both have the same force.	both jacks will move at the same speed.	the smaller jack will exert a force of 600N and the larger 1200N	the smaller jack will exert a force of 60N and the larger 120N
849	A separator in an accumulator:	isolates the gas from the fluid.	reduces the size of the accumulator required.	removes the dissolved gases from the fluid.	maintains the fluid level in the reservoir.
850	In an operating hydraulic actuator the pressure of the fluid will be:	greatest near to the actuator due to the load imposed on the jack.	greatest at the opposite end to the actuator due to the load imposed on the actuator	high initially, falling as the actuator completes its travel.	the same at all points.
851	The contents of the hydraulic fluid reservoir are checked. They indicate that the reservoir is at the full level. The system is then pressurized. Will the contents level:	fall below the "full" mark.	fall to a position marked 'full accumulators charged'.	remain at the same level.	rise above the "full" mark.
852	A pressure maintaining or priority valve:	enables ground operation of services when the engines are off.	is used to ensure available pressure is directed to essential services.	is used to control pressure to services requiring less than system pressure.	is used to increase pressure in the sys
853	A hydraulic lock occurs:	when the thermal RV operates.	when fluid by passes a system and returns to the tank.	when flow is stopped and the actuator is not able to move .	when fluid and air enters the cylinder and only fluid is allowed to bypass to the reservoir.
854	In an enclosed system pressure is felt:	more at the piston head than the rest of the cylinder.	more at the cylinder end than the piston head.	more when the piston is moving than when it is stationary.	the same at both ends between the piston and the cylinder head.
855	A non return valve:	can only be fitted if provided with a by pass selector.	closes if inlet pressure exceeds outlet pressure.	opens if inlet pressure equals, outlet pressure.	closes if inlet pressure ceases.
856	Low gas pressure in accumulator causes:	rapid jack movements.	no effect on system.	rapid pressure fluctuations while	rapid and smooth operation of system.

				system is operating.	
857	Hammering in system:	is normal and does not affect the systems efficiency.	is caused by pipe diameter fluctuations.	is an indication that a further selection is necessary.	is detrimental to the system.
858	The specification of hydraulic fluids (mineral, vegetable or ester based) is:	always distinguishable by taste and smell.	generally distinguishable by colour.	generally distinguishable by colour only if they are from the same manufacturer.	cannot be distinguished by colour alone.
859	An Automatic cut-off Valve(ACOV) will:	provide an idling circuit when a selection is made.	extend the life of the accumulator.	provide an idling circuit when the accumulator is fully charged.	ensure the pump is always on load.
860	A shuttle valve will allow:	the accumulator to be emptied after engine shut down.	the pressure pump to off-load when the system pressure is reached.	two independent pressure sources to operate a system/component.	high pressure fluid to return to the reservoir if the Full Flow Relief Valve fails.
861	The purpose of a reservoir is to:	compensates for temperature changes.	compensates for small leaks, expansion and jack displacement.	compensates for fluid loss.	to minimize pump cavitation.
862	When the hydraulic system pressure is released	reservoir air pressure will increase.	reservoir fluid contents will rise if reservoir is lower than other components in the system.	reservoir fluid contents will fall if reservoir is the highest point in the system.	reservoir contents are dumped overboard.
863	Hydraulic pressure in a closed system:	is greater in pipes of larger diameters.	is greater in pipes of smaller diameters.	does not vary with pipe diameter.	varies in direct proportion to the system demands.
864	Skydrol hydraulic fluid:	needs no special safety precautions or treatment.	is flame resistant but is harmful to skin, eyes and some paints.	is highly flammable and harmful to skin, eyes and some paints.	is highly flammable but not harmful in any other way.
865	Skydrol hydraulic fluid can be used to replenish:	any hydraulic system without restriction.	hydraulic systems that have butyl rubber seals only.	any hydraulic system in an emergency.	hydraulic systems that have neopropane seals only.
866	A variable displacement pump on system startup will be at:	minimum stroke.	an optimized position depending on fluid viscosity.	maximum stroke.	mid stroke.
867	The purpose of a reservoir is:	to provide a housing for the	to enable the contents	to allow for fluid	to provide a housing for

		instrument transmitters.	to be checked.	displacements, small leaks, thermal expansion and contents monitoring.	the main system pumps and so obviate the need for backing pumps.
868	Hydraulic Thermal Relief Valves are fitted:	to release all the pressure back to return in an overheat situation.	to release half the pressure back to return in an overheat situation.	to relieve excess pressure back to the actuator in an overheat situation.	in isolated lines only to relieve excess pressure caused by temperature rises.
869	A main system hydraulic pump:	does not need a positive fluid supply if primed before startup.	always needs a positive fluid supply in order to prevent cavitation.	does not need a positive fluid supply in order to prevent cavitation.	can be run dry without causing any damage.
870	Different diameter actuators supplied with the same pressure at same rate:	exert the same force.	will lift equal loads.	will move at the same speed.	exert different forces.
871	The function of an accumulator is to:	Store fluid under pressure	Dampen pressure fluctuations	Allow for fluid expansion	All of the above
872	The seal materials used with hydraulic fluids to DEF/STAN 91-48 and SKYDROL 700 specification are respectively	Natural rubber and neoprene	Neoprene and natural rubber	Butyl and neoprene	Neoprene and butyl
873	To prevent cavitation of the pump a hydraulic reservoir may be:	pressurized	bootstrapped	above the pump	all of the above
874	A hand pump is usually fitted	for ground servicing purposes	lowering the landing gear in an emergency	pressurising the oleo struts in the air	retracting the gear after take-off.
875	A one way restrictor:	restricts fluid flow in one direction and prevents in the other direction	allows fluid flow in one direction and prevents in the other direction	allows fluid flow in one direction and restricts in the other direction	restricts in one direction only during overpressure
876	Dry air should be used to charge hydraulic accumulator :	To a pressure greater than the pressure required to operate a mechanism	To a pressure lower than the pressure required to operate a mechanism	Before installation in the aircraft	both b and c are correct
877	Which of the following is a characteristics of skydrol ?	High flash point	High viscosity	Low moisture retention	Low flash point
878	The purpose of the relief valve in hydraulic system is to:	relief the excess pressure to the atmosphere.	protect the system from over pressure damage	regulate the system pressure	both a & c are correct
879	Operation of more than one selector valve at any desired moment is possible	close centered hydraulic system	open centered hydraulic system	simple hydraulic system	all the above are correct.

	in :				
880	The valve used in a hydraulic system that directs pressurized fluid to one end of an actuator cylinder and simultaneously directs return fluid to the reservoir from the other end is known as:	shuttle valve	selector valve	check valve	sequence valve
881	Oil is used in an oleo strut to :	Support the weight of the aircraft	Limit the speed of compression of the strut	Lubricate the piston within the cylinder	Limit the speed of extension and compression of the strut
882	The nose wheel assembly must be centered before retraction because:	There is limited space in the nose wheel bay	The aircraft may swerve on the next landing if the nose wheel is not straight	The tyres may be damaged on landing if the nose wheel is not straight	It will remove any slush or debris which may have accumulated on take-off
883	The movement of the gear on lowering is normally damped to:	Prevent the fluid becoming aerated	Counteract the force of gravity which would bring the gear down too fast	Make the lowering time greater than the raising time	Prevent the hydraulic fluid becoming overheated
884	Inadvertent retraction of the landing gear on the ground is :	Not possible because the system is not powerful enough	prevented by the ground/air logic system	always a danger after the ground locks have been removed	the responsibility of the first officer when he is on the aircraft
885	Creep or Slippage(slight movement of the tyre relative to the wheel):	is not a problem with tubeless tyres	refers to the movement of the aircraft against the brakes	can rip out the inflation valve and deflate the tyre	can be prevented by painting lines on the wheel and tyre.
886	Tyre wear when taxying can be reduced :	restricting the use of brakes and using thrust reversers	taxying at less than 40 kph	staying on the smoothest parts of the taxiway	taxying at less than 25 knots
887	To prevent scrubbing the tyres while taxying, you should :	use tyres with fusible plugs	make sharp turns only if you have high speed tyres fitted	turn no sharper than the minimum specified radius	deflate the tyres to a minimum pressure
888	The best extinguishant to use on a wheel or brake fire is :	CO2	Dry powder	Freon	Water
889	When inflating a tyre fitted to an aircraft, the tyre pressure reading on the gauge should be modified by :	1Opsi	10%	4psi	4%
890	The most likely cause of brake fade is:	oil or grease on the brake drums	worn stators	the pilot reducing the brake pressure	overheating
891	The pressure needed to operate the	the aircraft main hydraulic	the pilots brake pedals	a self contained	the hydraulic reservoir

	wheel brakes on a large aircraft comes from:	system		power pack	
892	Which of the following statements will produce the shortest landing run:	Crossing the threshold at the correct height and speed	Applying full anti-skid braking as quickly as possible after touchdown	Application of reverse thrust as early as possible in the landing run	All of the above
893	The formula which gives the minimum speed (VP) at which aquaplaning may occur is:	VP= 9 X ÖP where P is kg/cm2 and VP is in knots	VP= 9 X ÖP where P is psi and VP is in mph.	VP= 9 X ÖP where P is psi and VP is in knots	VP= 34 X ÖP where P is kg/cm2- and VP is in mph
894	An aircraft has a tyre pressure of 225 psi , its minimum aquaplaning speed will be:	135 mph	135 knots	145 knots	145 mph
895	Landing gear ground locking pins are:	fitted before flight to ensure the landing gear locks are fully cocked.	removed prior to flight and returned to stores	fitted after flight to maintain a hydraulic lock in the down lock jack	removed prior to flight and stowed on the aircraft where they are visible to the crew.
896	The most likely cause of brake unit dragging is:	dirt between the rotor and stator assemblies	grease on the rotor assembly	the brake pressure being too high	incorrect operation of the adjuster assemblies.
897	The anti-skid system would be used :	on landing runs only	on take off runs only	for take off on icy runways	for both take off and landing runs
898	A hydraulic gear retraction mechanism consists of sequence valves, uplocks and:	an anti-skid braking system	downlocks	torque links	a shock absorber.
899	A nose wheel steering control system;	prevents the nosewheel from castoring at all times	allows the nosewheel to castor within preset limits when in the neutral position	allows the nosewheel to castor freely at all times	prevents the nose gear from lowering if the nosewheels are not centralized.
900	At an aircraft taxying speed of 10mph the antiskid braking system is:	inoperative	operative	operative only on the nosewheel brakes	operative only on the main wheel brakes
901	The tyre pressures are checked after a long taxi to the ramp following landing. The pressures will have:	fallen by 15% from their rated value	risen by 15% from their rated value	remained constant	risen by 10% of their original value
902	The ply rating of a tyre :	always indicates the number of cords or plies in the tyre carcass	never indicates the number of cords or plies in the tyre carcass	indicates whether or not an inner tube should be fitted	is the index of the tyre strength
903	When the landing gear is selected UP the sequence of lights is:	red, green, out.	red, out, green	green, red, out	out, red, green
904	The amount of wear on a reinforced , ribbed tread tyre is indicated by:	the offset wear groove	marker tie bars	concentric wear rings	grey cushion rubber
905	In the event of an approach to land being	continuous bell	horn	buzzer	stick shaker

	made with the throttle levers retarded towards idle and the flaps down and the gear up , the warning given to the pilot will be a;				
906	Lowering the gear using the free fall system will result in the main landing gear doors :	closing hydraulically	closing mechanically	remaining open	being jettisoned
907	With RTO (rejected take-off) selected and armed the brakes will be automatically applied if:	V1 is not reached after a predetermined distance	Vr is not reached after a predetermined distance	reverse thrust is selected at any time	one of the thrust levers is returned to idle
908	A green fusible plug is designed to deflate the tyre if a temperature of --------is reached.	177 ° C	277 ° C	155 ° C	199 ° C
909	The landing gear in modern aircraft are retracted into the structure to reduce :	induced drag	weight	parasite drag	both (b) and (c) are correct.
910	Which of the following can be used as braking device in flight as well as during landing?	Wheel brakes	Spoiler & aerodynamic speed brakes	Thrust reversers	all the above are correct.
911	Shimmy can be prevented by:	Implementing shimmy dampers	application of friction at the spindle of main wheel	locking the wheel while taxiing at low speed	all the above are correct
912	The purpose of pulley wheels in cable control systems is:	to ensure the cable tensions are equal throughout the system	to change the direction of the control cable	to ensure smooth operation of the system	to prevent the cable from slackening
913	The purpose of the primary stops in a control system is	to set the range of movement of the control surface	to enable the secondary stops to be correctly spaced	to limit control movement to one direction only	to set the control surface neutral position
914	The purpose of the secondary stops in a control system is	to reduce the control loads on the primary stops	to limit control surface range in the event of primary stop failure	to limit the secondary control system from excessive movement	to remove the excess backlash in the controls
915	The purpose of the fairleads in a cable control system is to	alter the angle of deflection of the cables	to guide the cables on to the pulley wheels	to attach the cables to chain drives	to keep the cable straight and clear of structure
916	In a cable control system cables are tensioned to	remove backlash from the control linkage and provide positive action in both directions	provide tension on the turnbuckles and compensate for temperature variations	provide tension on the turnbuckles and ensure the full range is achieved	all the above
917	In a cable control system the cables are mounted in pairs to	remove backlash from the control linkage	provide positive action in both directions	ensure the full range is achieved	provide tension on the turnbuckles

918	In a manual flying control system the control inputs to the primary control surfaces	are reversible and are opposite for the movement required	are irreversible and are opposite for the movement required	are reversible and are instinctive for the movement required	are reversible, are instinctive for the movement required and are limited in range by flight deck obstructions
919	To yaw the aircraft to the right	the right rudder pedal is pushed forward and the rudder moves to the left	the right rudder pedal is pushed forward and the rudder moves to the right	the left rudder pedal is pushed forward and the rudder moves to the left	the left rudder pedal is pushed forward and the rudder moves to the left
920	To roll the aircraft to the right	the rudder control is moved to the right, the right aileron moves up and the left down.	the aileron control is moved to the left and the right aileron moves up and the left down.	The aileron control is moved to the right and the right elevator goes up and the left one down.	The aileron control is moved to the right, the right aileron goes up and the left one down.
921	The advantages of a cable control are	light, very good strength to weight ratio	easy to route through the aircraft and less bolted joints	less prone to impact damage and takes up less volume	all of the above
922	Right wing of an aircraft flying low, to rectify that you should operate :	Left spring tab upward	right aileron trim tab downward	left balance tab upward.	left aileron trim tab downward
923	Which way does the balance tab move to bank an airplane to the left?	upward in the left aileron.	downward in the left aileron	downward in the right aileron	right in the rudder
924	During flight the unbalance condition may be corrected without exerting any pressure on the primary control by:	balance tab	Spring tab	control tab	trim tab
925	Main and nose wheel bays are:	pressurized	unpressurized	conditioned	different, with the mains being unpressurized and the nose pressurized
926	Normal maximum negative differential pressure is:	when atmospheric pressure exceeds cabin pressure by the amount permitted by the system controls	where the cabin pressure falls below aircraft altitude pressure at which time the inward relief valve opens.	when the cabin pressure exceeds the atmospheric pressure by 0.5 PSI	the pressure at which the duct relief valve is set to operate.
927	When would the negative differential limit be reached/exceeded:	rapid descent when A/C descends below cabin altitude	during ground pressure testing	rapid ascent when aircraft climbs	when changing to manual operation
928	A/C in level flight if cabin altitude increases does pressure diff:	increase	decrease	remain the same	nil

929	In level pressurized flight does the outflow valve:	close	adjust to provide constant flow, and is normally partially open	open to increase air conditioning	adjust to provide constant flow, and is normally almost closed
930	In a turbo cooler system is the cooling air:	ram air	engine by pass air	cabin air	compressor air
931	The rate of change of cabin pressure should be kept to the minimum. Is this more important:	in descent	in climb	in periods when the dehumidifier is in use	in cruise
932	Is a cabin humidifier:	on the ground in conditions of low relative humidity	at high altitude	at low altitude	on the ground in high ambient temperatures
933	Fatigue life of the fuselage is based on the:	number of pressurization cycles	number of explosive decompressions	number of landings only.	number of cycles at maximum differential
934	If the forward oil seal in an axial flow compressor fails, will air be:	contaminated	unaffected	`b' is only correct if synthetic oil is used	`a' will be correct only if the aircraft is inverted
935	Rate of change of cabin altitude is shown on a:	special gauge	aircrafts VSI	cabin pressure controller	gauge reading a percentage of Max Diff Pressure
936	Cabin discharge valve (pneumatic) is supplied with:	air data computer output information	cabin and static pressure	cabin pressure, static and air speed information	cabin pressure only
937	On what principle does the vapour cycle cooling system work on:	liquid into vapour	vapour into liquid	vapour into gas	cold gas into hot gas
938	What is the purpose of the duct relief valve:	to protect the undercarriage bay	to ensure the compressor pressure is regulated	to prevent damage to the ducts	to relieve excess pressure to compressor return line
939	What system is installed to control the air conditioning:	emulsifier and water extractor	impingement type dehydrator and humidifier	dehydrator only	humidifier only
940	How is the (charge) air cooled in a bootstrap (turbo-compressor) system?	by expanding over turbine	by expanding over turbine driving compressor	via an air cooled radiator	by passing it through the fuel heater
941	At the max differential phase, is the discharge valve:	open	closed	under the control of the rate capsule	partly open
942	What is the purpose of inward relief valves:	to prevent negative differential	to back up the duct relief valve	to allow positive pressure to be bled off in an emergency	to back up the outflow valve
943	On a ground pressurization test, if the cabin suffers a rapid de-pressurization:	the temperature will rise suddenly	water precipitation will occur	damage to hull may occur	duct relief valve may jam open
944	A heat exchanger functions by:	combining ram and charge	mixing the various	passing charge air	removing the static

		air	vapours inside the heat exchanger	through ducts and cool air around ducts	charge
945	Maximum Differential pressure:	is the maximum authorized pressure difference between the inside of the fuselage and the atmospheric ambient pressure	is the absolute pressure provided by the vacuum pump	is the pressure loss over a given time limit	is the absolute pressure the cabin pressure ducting is designed to carry
946	A humidifier is fitted to:	extract the moisture content in the air	filter the air	increase the moisture content in the air when operating at high altitude	to ensure the cabin air is saturated at high altitude
947	If the discharge or outflow valve closes:	the duct relief valve will take control	the inward relief valve would assume control	the safety valve would limit the positive pressure difference	the safety relief valve would limit the negative pressure difference
948	Air for conditioning and pressurization is taken from:	the engine compressor or cabin compressor	the engine by pass duct or thrust reverse by pass duct	the engine compressor or ram turbine	the engine turbine or cabin compressor
949	Safety valves are biased:	inwards	outwards	in the direction sensed by the SVC	neither a nor b
950	Cabin compressors:	increase their flow in cruise conditions	decrease their flow in cruise conditions	increase their flow in proportion to increases of altitude differential pressure and reduction in engine RPM in order to maintain the mass flow.	deliver minimum air at sea level via the cold air unit.
951	In a pressurization circuit the sequence of operation is for the:	inward relief valve to open before the safety valve	outflow valve to operate before the safety valve	outflow valve to operate after the safety valve	outflow valve to operate the same time as the safety valve.
952	With the QFE set on the cabin controller, against an altitude of zero:	the fuselage will be pressurized on landing	a ground pressurization will automatically take place	the cabin will be unpressurised on landing	the flight deck will be depressurized
953	In the cruise at 30,000ft the cabin altitude is adjusted from 4,000ft to 6,000ft:	cabin differential will increase	cabin differential will not be affected	cabin differential will decrease	nil
954	An aircraft climbs from sea level to	the same time as it takes the	half the time it takes	twice the time it takes	three times the time it

	16,000 ft at 1,000ft per min, the cabin pressurization is set to climb at 500ft per min to a cabin altitude of 8,000ft. The time taken for the cabin to reach 8,000ft is:	aircraft to reach 16,000ft	the aircraft to reach 16,000ft	the aircraft to reach 16,000ft	takes the aircraft to reach 16,000ft
955	The aircraft inhibiting switch connected to the A/C landing gear:	allows the aircraft to be pressurized on the ground	stops pressurizing on the ground and ensures that there is no pressure differential	ensures that the discharge valve is closed	cancels out the safety valve on the ground
956	Negative differential is limited by:	dump valve	inward relief valve	outflow valve	safety valve
957	Sequence of air through a vapour cooling system is:	turbine then expansion valve	tank then evaporator	turbine then evaporator	compressor then turbine
958	To maintain a steady and constant airflow regardless of altitude or cabin pressure:	a duct relief valve is fitted	a venturi device is fitted	a mass flow controller is fitted	a thermostatic relief valve is fitted
959	The term "pressurization cycle" means:	air introduced into a fuselage under pressure only	air introduced into a fuselage under pressure until the time the air is released	air discharged from the fuselage, above 15 psi	the frequency in Hzs the pressure cycles from the roots blowers enter the fuselage
960	Inward Relief Valves operate:	in conjunction with the cabin pressure controller when there is a negative diff.	in conjunction with the cabin altitude selector when there is negative diff	when manually selected during the emergency descent procedure	automatically when there is a negative diff.
961	Safety valves operate:	at higher diff than discharge valve	as soon as initiation takes place	at a lower diff than a discharge valve	at a set value, which is selected
962	Ditching Cocks are operated:	automatically when the soluble plugs dissolve	to shut all outflow valves	to direct pressure into flotation bags	for rapid depressurization
963	Duct Relief Valves operate when:	excessive pressure builds up in the air conditioning system supply ducts	to keep cabin pressure close to ambient pressure	to prevent the floor from collapsing should baggage door open.	the cooling modulator shutters reach the optimized position.
964	During a normal pressurized cruise, the discharge valve position is:	at a position pre-set before take off	partially open	open until selected altitude is reached	closed until selected altitude is reached.
965	A dump valve:	automatically opens when fuel is dumped	is controlled manually	is opened automatically when the safety valve opens	is controlled by the safety valve integrating line.
966	When air is pressurized, the % of oxygen in it:	increases	decreases	remains the same	nil
967	An aircraft is prevented from pressurizing	the auto deflating valve on	inhibiting micro	inhibiting micro	the pressure control

	on the ground by:	the main oleos	switches on the landing gear	switches on the throttles	master switch
968	If the cabin pressure increases in level flight does the cabin VSI show:	rate of climb	no change unless the aircraft climbs	rate of descent	nil
969	The term pressure cabin is used to describe:	pressurization of the flight deck only	the ability to pressurize the aircraft to a higher than ambient pressure	the passenger cabin on an airliner	the ability to maintain a constant pressure differential at all altitudes
970	When air is pressurized by an engine driven compressor, it is also:	moisturized	heated	cooled	the temperature is not affected
971	The electrical supply to the propeller blades for de-icing purposes:	is controlled to give an intermittent supply.	must be taken directly from the APU generator.	must only be selected on for short periods.	is continuous to all blades.
972	Propeller blade heating elements are:	fitted only to the thin outer sections where maximum ice accretion occurs.	fitted only to the thick inner section where minimum ice accretion occurs.	usually fitted to the thick section but sometimes a second element is fitted to a mid section.	fitted to the complete leading edge.
973	When an aircraft is de-iced prior to departure, if the temperature is 0°C in precipitation, which type of fluid and application method will provide the longest holdover period:	Type I fluid at the rate of 100% cold spray application.	Type II fluid diluted to 50% hot spray application.	Type I fluid diluted to 50% hot spray application.	Type II fluid at the rate of 100% cold spray application.
974	The effect of frost on an aircraft:	is to cause an increase in boundary layer energy and so delay the onset of the stall.	can be generally ignored.	has no significant effect on the aerodynamic contour or CL max.	is to cause an increase in the surface roughness which in turn increases skin friction and reduces the kinetic energy of the boundary layer.
975	In flight airframe icing does not occur:	above 25,000 feet	above 40,000 feet	above 35,000 feet	above 35,000 feet
976	The methods used to provide de-icing in flight can be:	mechanical or pneumatic or fluid.	pneumatic or thermal or fluid.	electrically heated or air heated or oil heated.	centrifugally forced or ram air heated.
977	Ice detectors are used primarily to warn the crew:	that they are approaching airframe icing conditions.	that they are approaching engine icing conditions.	that engine icing conditions now warrant the initiation of the engine system.	that airframe icing conditions exist.
978	Fluid is delivered to a propeller by:	a centrifugal slipper ring and	integral passages	a small reservoir	a slinger ring and pipes.

		pipes.	within the propeller dome.	contained within the spinner.	
979	If an aircraft is to be de-iced prior to departure:	the aircraft can be de-iced with the engines running.	the aircraft can be de-iced with the APU running.	the aircraft can be de-iced with the APU running and the bleed air off.	neither the APU or main engines can be running during the procedure.
980	With a gas turbine engine, should engine anti-icing be selected "ON":	whenever the igniters are on.	whenever the OAT is +10°C or below and the air contains visible moisture.	whenever the TAT is +10°C or below and it is raining.	whenever the ice detector system warning light comes on.
981	The defrost system heats:	inner side of windshield and side windows	outer side of windshield and side windows	both the inner and outer sides of windshield and side windows	inner side of side windows only
982	Inflatable rubber boots de-icing systems can be used in:	wing leading edge de-icing	propeller leading edge de-icing	horizontal stabilizer leading edge	both a) and c) are correct
983	The windshield anti-icing is used to:	increase the strength of windshield	prevent ice formation	improve the impact resistance	All the above are correct
984	In a pneumatic de-icing system:	the boots remain inflated while the system operates.	the boots are inflated and deflated repeatedly.	vacuum inflates the boots and pressure deflates them repeatedly.	when the boots are fully inflated the pressure is released and they collapse due to their elasticity.
985	When the pneumatic de-icing system is switched off:	the relief valves admit ram air to the boots.	a small flow of hot air continuously flows through the boots.	the dynamic pressure on the leading edge ensures that the boots lie flat.	vacuum deflates the boots to minimize drag.
986	Propeller electrical de-icing systems:	use only continuous loads to the elements.	use a cyclic timer.	convert electrical energy to mechanical energy.	transfer power to the elements via a commutator in DC systems.
987	To prevent propeller elements overheating:	use only when all other services are switched off.	carry out a load check before starting engines.	use only when the propellers are rotating.	use only when in flight.
988	A thermal wing de-icing system:	feeds hot air along the complete upper wing surface.	feeds the engine exhaust through the leading edge ducts only.	can use air taken from the engine compressor.	relies on heat generated by the kinetic heating effect of the airflow.

989	Pilots cockpit windows are heated:	only to prevent condensation occurring.	by agitating the window molecules with an AC current.	with a reflective inner coating that prevents fogging.	by passing current across an inner conductive electrical coating.
990	For maximum strength against impact damage pilots windows are:	normally kept to a minimum size.	specially treated during construction.	heated internally to increase their elasticity.	only heated when the MAT falls below 0°C in precipitation.
991	Pilots cockpit windows are:	only heated by air from the de-misting fan.	constructed by heat treating the outer surface to reduce glare.	made of sandwich construction with an electrical conductive coating.	made of polarized glass.
992	An aircraft is to be de-iced and then enter the line up for departure. Which de-ice fluid will have the best holdover time at 0°C with precipitation:	type I fluid at 100% cold spray.	a 50%/50% solution of type II fluid hot spray.	a 50%/50% solution of type I fluid hot spray.	type II fluid at 100% cold spray.
993	Without added oxygen the time of useful consciousness at 25 000 ft is approximately:	twenty seconds	eighty seconds	three minutes	six minutes
994	Without added oxygen the time of useful consciousness at 40,000 ft is approximately:	twenty seconds	three minutes	eighty seconds	six minutes
995	The maximum altitude without oxygen at which flying efficiency is not seriously impaired is:	10,000 ft	17,500 ft	25,000 ft	30,000 ft
996	In a pressure demand oxygen system:	each member of the crew has a regulator.	each member of the crew has a continuous oxygen supply.	oxygen is supplied with a continuous pressure flow.	oxygen demand will cause the pressure to rise.
997	In a continuous flow oxygen system, oxygen is supplied:	only when the mask is plugged into the socket connection.	only on passenger inhalation through the mask.	only when the cabin altitude is above 18 000 ft.	only when the supply has been regulated by the pilot.
998	In a diluter demand system, selection of emergency on this regulator will result in:	air mix supplied at emergency pressure.	100% oxygen supply as called for by the user.	100% oxygen at positive pressure.	100% oxygen continuous flow at positive pressure.
999	If the aircraft suffers a decompression passenger oxygen masks:	are released by the passengers.	automatically drop to a half hung (ready position).	are handed out by the cabin staff.	must be removed from the life jacket storage.
1000	Oxygen cylinders are normally charged to:	1 000 PSI	1 200 PSI	1 800 PSI	2 000 PSI
1001	All effects of electricity take place because of the existence of a tiny particle	electric.	proton.	neutron.	electron

	called the:				
1002	The nucleus of an atom is:	positively charged.	negatively charged.	statically charged.	of zero potential.
1003	An atom is electrically balanced when:	its protons and electrons balance each other.	the protons outnumber the electrons.	the electrons outnumber the protons.	the electric and static charges are balanced.
1004	The electrons of an atom are:	positively charged.	neutral.	negatively charged.	of zero potential.
1005	A material with a deficiency of electrons becomes:	positively charged.	negatively charged.	isolated.	overheated.
1006	A material with a surplus of electrons becomes:	positively charged.	negatively charged.	over charged.	saturated.
1007	Heat produces an electric charge when:	like poles are joined.	a hard and soft glass is heated.	the junction of two unlike metals is heated.	hard and soft material are rubbed together.
1008	Friction causes:	mobile electricity.	basic electricity.	static electricity.	wild electricity.
1009	Chemical action produces electricity in:	a light meter.	a generator.	a primary cell.	starter generator.
1010	A photo electric cell produces electricity when:	two metals are heated.	exposed to a light source.	a light source is removed.	exposed to the heat of the sun.
1011	The difference in electric potential is measured in:	KVAR's	watts	amps	volts
1012	The units of electrical power is measured in:	watts	amperes	ohms	volts
1013	An ammeter measures:	current	power dissipation	differences of electrical potential	heat energy
1014	The unit used for measuring the E.M.F. of electricity is:	the ohm	the ampere	the volt	the watt
1015	Three resistance of 60 ohms each in parallel give a total resistance of:	180 ohms	40 ohms	30 ohms	20 ohms
1016	Watts =	resistance squared x amps	volts x ohms	ohms x amps	volts x amps
1017	The total resistance of a number of power consumer devices connected in series is:	the addition of the individual resistances.	the addition of the reciprocals of the individual resistance.	twice the reciprocal of the individual resistances.	the reciprocal of the total.
1018	Ohms Law states:	Current in amps =(Resistance in ohms)/(Electromotive force in volts)	Resistance in ohms = (Current in amps)/(Electromotive force in volts)	Current in amps = (Electromotive force in volts)/(Resistance in ohms)	None of the above.
1019	In a simple electrical circuit, if the resistors are in parallel, the total current	the sum of the currents taken by the devices divided	the sum of the currents taken by the	the average current taken by the devices	the sum of the reciprocals of the

	consumed is equal to:	by the number of devices.	devices.	times the number of the devices.	currents taken by the devices.
1020	Electrical potential is measured in:	watts	bars	volts	ohms
1021	The current flowing in an electrical circuit is measured in:	volts	ohms	inductance	amps
1022	OHMS law is given by the formula	I = R/V	V=R/I	I = V/R	R = VxI
1023	The unit of EMF is the	Ampere	Volt	Watt	Ohm
1024	The unit of current is the	Ampere	Volt	Watt	Ohm
1025	1,250 ohms may also be expressed as	1250 K ohms	1.25 K ohms	1.25 M ohms	0.125 K ohms
1026	550 K ohms may also be expressed as	550000 M ohms	0.55 M ohms	55000 ohms	0.55 ohms
1027	In a circuit fitted with a non trip free circuit breaker if a fault occurs and persists:	if the reset button is depressed and held in, the circuit will be made.	the trip button may be pressed to reset, but not permanently.	a non trip free circuit breaker can never be by-passed.	the reset button may be pressed to make the circuit permanent.
1028	Circuit breakers and fuses	are used in DC circuits only	are used in AC or DC circuits	are used in AC circuits only	are used in low current circuits only
1029	If the reset button is pressed in the trip-free circuit breaker, the contacts with the fault cleared will:	be made and kept made.	only be made if there is a fuse in the circuit.	reset itself only after a delay of 20 seconds.	not be made and the reset will remain inoperative.
1030	A non-trip free circuit breaker is:	one which can make a circuit in flight by pushing a button.	a wire placed in a conductor which melts under overload.	another type of voltage regulator.	an on-off type tumbler switch.
1031	A thermal circuit breaker works on the principle of:	differential expAnsion of metals.	differential thickness of metals.	differential density of metals.	differential pressure of metals.
1032	A fuse is said to have blown when:	an excess current has burst the outer cover and disconnected the circuit from the supply.	the circuit is reconnected.	a current of a higher value than the fuse rating has melted the conductor and disconnected the circuit from the supply.	the amperage has been sufficiently high to cause the fuse to trip out of its holder and has therefore, disconnected the circuit from the supply.
1033	Overloading an electrical circuit causes the fuse to 'Blow'. This:	increases the weight of the insulation.	fractures the fuse case.	disconnects the fuse from its holder.	melts the fuse wire
1034	The size of fuse required for an electrical circuit whose power is 72 watts and whose voltage is 24 volts is:	24 amps	10 amps	5 amps	15 amps
1035	A fuse is used to protect an electrical circuit, it is:	of low melting point.	of high capacity.	of high melting point.	of low resistance.

1036	A current limiter:	is a fuse with a low melting point.	is a circuit breaker.	is a fuse with a high melting point.	is a fuse enclosed in a quartz or sand.
1037	Two 12V 40 amp/hour batteries connected in series will produce:	12V 80 amp/hr	12V 20 amp/hr	24V 80 amp/hr	24V 40 amp/hr
1038	A battery capacity test is carried out:	6 monthly	2 monthly	3 monthly	every minor check
1039	An aircraft has a battery with a capacity of 40 amp/hr. Assuming that it will provide its normal capacity and is discharged at the 10 hour rate:	it will pass 40 amps for 10 hrs.	it will pass 10 amps for 4 hrs.	it will pass 4 amps for 10 hrs.	it will pass 40 amps for 1 hr.
1040	The method of ascertaining the voltage of a standard aircraft lead-acid battery is by checking:	the voltage on open circuit.	the current flow with a rated voltage charge.	the voltage off load.	the voltage with rated load switched 'ON'.
1041	In an AC circuit:	the battery is connected in series.	a battery cannot be used because the wire is too thick.	a battery cannot be used because it is DC	only NICAD batteries can be used.
1042	The specific gravity of a fully charged lead acid cell is:	1.27	1.09	1.12	0.127
1043	A lead acid battery voltage should be checked:	on open circuit	using a trimmer circuit	with an ammeter	on load
1044	The system used to maintain aircraft batteries in a high state of charge is the:	constant current system.	constant load system.	constant resistance system.	constant voltage system.
1045	The nominal voltage of an alkaline cell is:	2.2 volts	1.8 volts	1.2 volts	0.12 volts
1046	The electrolyte used in the lead acid cell is diluted:	hydrochloric acid.	sulphuric acid.	boric acid.	potassium hydroxide.
1047	A Lead-acid cell :	is a secondary cell.	is a primary cell because it cannot be recharged after the acid is used up.	Contains Lead sulphate, Lead peroxide and Sulphuric acid.	Both (a) and (c) are correct.
1048	The number of lead acid cells required to make up a Twelve Volt Battery is:	8	12	6	10
1049	The voltage of a secondary cell is:	determined by the number of plates.	determined by the area of the plates.	determined by the diameter of the main terminals.	determined by the active materials on the plates.
1050	To top up the electrolyte add:	sulphuric acid.	distilled water.	sulphuric acid diluted with distilled water.	boric acid.
1051	The capacity of a lead acid battery is:	determined by the area of the plates.	determined by the active materials on the plates.	determined by the size of the series coupling bars.	determined by the number of separators.

1052	When the battery master switch is switched off in flight:	the generators are disconnected from the bus bar.	the ammeter reads maximum.	the battery is isolated from the bus bar.	the battery is discharged through the bonding circuit diodes.
1053	If two batteries are connected in parallel :	The voltage rating remains the same while current rating increases.	The current rating remains the same while voltage rating increases.	Both the voltage and current rating increases.	Only the ampere-Hour increases.
1054	When a magnet is unable to accept any further magnetism it is termed:	reluctance.	saturation.	active.	reactance.
1055	Magnetic lines of force flow externally from:	one main line station to another.	the master station.	the north to the south pole.	in a random direction.
1056	Electromagnetism is a product of:	voltage.	current.	resistance.	engine resistance.
1057	If you bring two magnets together:	like poles will attract.	unlike poles will attract.	over heating will occur.	their magnetic fields will adjust to avoid overcrowding.
1058	An EMF is induced in a conductor rotating in a magnetic field by:	capacitive reaction.	the reverse current relay.	electro transmission.	electro magnetic induction.
1059	If a conductor is placed in a magnetic field:	an EMF is induced in the conductor.	an EMF is induced in the conductor only when the conductor rotates.	the applied resistance assists the back EMF.	an EMF is induced in the conductor only when the conductor is stationary.
1060	An internally excited generator is one where:	the field is produced within the distribution.	the field is initiated by a HT and LT coil.	the field is initiated by the battery.	the field is initiated within the generator.
1061	Another name for a number of conductors rotating in a magnetic field is:	a capacitor.	an armature.	a condenser.	a commutator.
1062	The voltage regulator:	senses cut out pressure and adjusts field current.	senses generator output pressure and adjusts field current.	senses generator output current and adjusts the field voltage.	senses back EMF.
1063	The voltage regulator:	provides a constant current flow from the generator with changes of generator speed.	senses current output.	maintains a steady generator voltage with changes of generator speed.	regulates the amount of current supplied by the battery to operate the generator.
1064	On aircraft, generator voltage is regulated by:	varying the generator field strength.	increasing and decreasing the load.	changing the generator speed.	changing generator load.
1065	A voltage regulator is fitted to:	prevent high circulating currents.	prevent backlash.	to ensure correct voltage output to battery.	to prevent battery feedback to the generator.

1066	If a circuit is designed for 12 volts - the generator will:	give paralleled output only.	give controlled 14 volts.	14 volts wild D	give controlled 12 volts.
1067	In a generator control circuit the strength of the magnetic field is controlled by:	the commutator.	the voltage regulator	the reverse current contactor.	the output C/B.
1068	Actuator normal travel is controlled by:	a clutch.	limit micro switches.	mechanical indicators.	mechanical stops.
1069	On a twin engined DC aircraft having two DC generators load sharing is achieved by:	equalizing engine RPM'S	an equalizing circuit to sense the difference and equalize the voltages of the two generators	synchronizing relays and voltage coil tuners	an equalizing circuit to sense the difference and equalize the field currents of the two generators
1070	To supply direct current from a generator giving alternating current it is normal to fit:	a commutator	a rotary inverter.	an alternator.	a static inverter.
1071	A device for changing AC to DC is:	an inverter.	a rotary transformer.	a rectifier.	an alternator.
1072	Friction clutches are fitted to actuators for:	protection against mechanical overload.	protection against brake on loads.	protection against non return valve failure.	protection against supply failures.
1073	In an electrical circuit the reverse current cut-out relay will open:	when battery voltage exceeds generator voltage.	when circuit voltage is less than generator voltage.	when the main output C/B is reset.	when the batteries are flat.
1074	A generator cut-out will open when:	circuit loads equal the battery voltage.	the air temperature reaches 45°C.	circuit loads equal the generator voltage.	generator voltage falls below battery voltage.
1075	In the event of the cut-out points sticking in the closed position, the most probable results, when the engine stopped would be:	gain of engine power.	a burnt out generator.	loss of residual magnetism.	no apparent reaction.
1076	A generator cut-out is fitted:	in series with the generator output.	in the diode circuit.	in parallel with the generator output.	in the field circuit.
1077	On a 28 volt system with a 24 volt battery the cut-out contacts close at approximately:	36 volts.	24 volts.	28 volts.	26 volts.
1078	If the cut-out is open, the battery is feeding the loads which are:	in series with the battery.	in parallel with the battery.	in sequence with the cut-out.	cross coupled.
1079	A generator converts mechanical energy to electrical by:	electro magnetic spring action.	electro magnetic induction.	electrostatic induction.	electro dynamic induction.
1080	If the generator warning light comes on in flight it indicates that:	the generator is feeding the battery bus bar.	the generator is not feeding the battery bus	the battery has failed.	a rectifier is faulty.

			bar.		
1081	A generator warning light will be illuminated:	when the battery voltage exceeds that of the generator and the cut-out has opened.	at night only.	when the generator is supplying current to a fully charged battery, and no electrical loads are switched on.	when the battery charge current is lower than required to maintain its fully charged state.
1082	If one generator fails you should:	switch off the good generator.	stop and feather the engine concerned.	switch off the failed generator and continue normal use of the electrical system.	switch off the failed generator, and cut down on the electrical services being used.
1083	In a twin engine aircraft, fitted with two generators, if one should fail:	the failed generator must be isolated.	cut down the air supply to reduce five risks.	the failed generator must be stopped.	both generators must be switched off.
1084	Generator failure is indicted by:	load sharing circuits connecting.	a decrease or discharge in ammeter readings and generator warning light on.	an increase in voltmeter readings, a discharge in ammeter reading and generator warning light on.	failure of electrically driven instruments.
1085	Loads on a bus bar are:	in series with the generator so that the voltage can be reduced.	in parallel so the voltage can be varied.	in parallel so the current can be reduced.	determined by the cross sectional area of the lead cable.
1086	A generator is taken'off line’ by:	the battery switch.	operation of the field switch.	opening of the cut-out.	removing of all loads.
1087	If the ammeter shows 'no' charge, yet the battery remains charged. Would you look for:	loose battery connections.	defective voltage regulator.	defective C/B.	defective ammeter.
1088	During flight a malfunction of the generator cut-out would be indicated by:	overheating of the battery.	the ammeter.	lights going out.	the current limiter.
1089	In a'2 pole' electrical circuit, a short of the conductors would result in:	an item of equipment operating automatically without switches.	the component not working.	an increase in voltage.	an item of equipment burning out because of a large current flow.
1090	An electrical system which uses the aircraft structure as a return path for current, is known as:	a diode pole circuit.	an earth return circuit.	a single phase circuit.	a dipole circuit.
1091	In a double pole circuit:	the systems polarity will change.	the current is supplied by one wire and the current is returned	the current passes out through one wire and is returned	the current passes out through one wire and is returned via the aircraft's

			through the aircraft bonding system.	through a second wire.	immune circuit.
1092	A `hot bus' is	the bus bar always connected to the battery	the bus bar that supplies the galley power	the bus bar that supplies the essential loads	the bus bar that supplies the nom-essential loads
1093	A dipole circuit is one where:	diode valves are used.	three conductors are used.	the aircraft structure is used for the earth return.	two conductor wires are used
1094	Bonding is used to protect the aircraft against fire from arcing of static electricity by:	providing an earth return.	shortening the negative strips.	maintaining different electrical potential throughout the structure.	ensuring the same electrical potential of all metal components.
1095	Static electrical charges and currents in an aircraft structure are evened out by:	hardening	screening	bonding	anodizing
1096	Bonding is a method of:	heat screening.	providing a positive reaction.	ensuring that the different parts of the aircraft are maintained at a different potential.	ensuring that the different parts of the aircraft are maintained at the same potential.
1097	Spare fuses are carried:	at the operator’s discretion.	for generators only.	by law with a stated minimum number required.	by the first officer.
1098	Differential cut-outs close when a differential voltage exists between the:	generator bus and battery bus-bar.	generator bus-bar and earth.	batteries.	battery bus-bar and earth.
1099	A megohm is:	10,000 ohms	1000 ohms	1,000,000 ohms	1,000,000,000 ohms
1100	The formula for calculating power is	V2/R orI2 x R or IxV	V2 or I x R or I x V R	V or I2 x R or I2 x V R2	V or Ix R2 or I x V R2
1101	Assuming a 5 amp circuit has failed during flight and investigation has shown that the fuse is open circuit, the action to be taken is to:	to switch the circuit off immediately.	switch off replace the fuse with another of the correct rating for the circuit and repeat this action as often as necessary.	leave the switch on, replace the failed fuse with one of increased rating.	switch off, replace the failed fuse with one of the correct rating once only.
1102	A simple electrical circuit has a current flow of 4 amperes and its resistance is 5 ohms. How much power (watts) is used:	20 watts	45 watts	80 watts	100 watts
1103	A NICAD battery shows a high temperature after engine start, this could be an indication of:	thermal runaway.	it is not connected to the battery bus-bar.	normal temperature during charging.	depends upon the outside air temperature.

1104	A generator or battery cut-out is fitted:	to isolate the battery on touch down.	to prevent the battery from being overcharged.	to allow the generator to be isolated in a crash.	to prevent the battery feeding back into the generator when its voltage is above the generator voltage.
1105	On an earth return aircraft wiring circuit:	the negative pole is connected to the aircraft structure.	the positive pole is connected to the aircraft structure.	the negative pole is connected to the positive pole.	two fused are needed.
1106	A circuit breaker that has tripped due to overload:	cannot be reset unless the circuit has returned to normal.	will not be able to be reset in the air.	will reset itself when the circuit returns to normal.	must be replaced.
1107	As the speed of an electric motor increases the back EMF will:	remain the same.	fluctuate.	increase.	decrease.
1108	An inertia switch on an aircraft will operate:	when selected by the pilot or flight engineer.	automatically in flight.	during an emergency or crash landing.	in flight only.
1109	Electrical components of aircraft systems are screened to:	bond the circuit to reduce risk of fire.	prevent them interfering with the function of radio equipment.	prevent short circuits interfering with aircraft equipment.	prevent engine malfunctions.
1110	The ratio of true power to apparent power is known as :¬	Ohms.	the power factor.	kVAs.	the r.m.s. value.
1111	The amount of electrical power output for a given generator weight is :¬	dependent on the aircrafts power requirements.	greater for a DC generator.	greater for an AC generator.	determined by the size of the aircraft.
1112	Instrument transformers normally :¬	convert 14 volts DC to 26 volts AC	reduce the A.C supply to 26 volts for some instruments.	change 115 volts to 200 volts for engine instruments.	convert 28 volts DC to 28 volts AC
1113	The voltage output of an AC generator will rise to a maximum value :¬	in one direction, fall to zero and rise in the same direction.	in one direction and remain there.	in one direction, fall to zero and rise to a maximum value in the opposite direction.	in one direction only.
1114	In a capacitive circuit, if the frequency increases :¬	current decreases.	current increases.	current flow is unaffected by frequency change.	the voltage fluctuates.
1115	A 400 Hz supply has :	an output capacity of 400,000 watts.	an impedance of 400 ohms.	a frequency of 400 cycles per second.	a frequency of 400 cycles per minute.
1116	An alternator is :-	a reversing input switch.	an AC generator.	a DC generator.	a static inverter.
1117	The number of separate stator windings in an AC generator determines :-	the output voltage of the supply.	the output frequency of the supply.	the power factor.	the number of phases present in the supply.

1118	In an A.C generator :	Current supplied to the field is AC for rotating field type AC generator.	Current supplied to the field is DC for rotating field type AC generator only.	The field current is DC for both rotating field and rotating armature AC generators.	The field current is DC for rotating armature type a.c generators only.
1119	In a Star wound three phase system: -	line voltage equals phase voltage and line current equals .707 times phase current.	line current and voltage are 1.73 times phase current and voltage.	line current equals phase current and line voltage equals .707 times phase voltage.	line current equals phase current and line voltage equals 1.73 times phase voltage.
1120	The output of an AC generator is taken from :	the exciter windings.	the field coils.	the stator windings.	the rotor coils.
1121	If an alternator is run at below normal frequency, then :	electric motors will stop.	inductive devices will overheat.	lights will become dim.	lights will become brighter.
1122	The power factor is :	kVA/kW	kW/kVAR	kW/kVA	kVAR/kW
1123	Generator output frequency is decreased by decreasing the :	generator field rotation speed.	generator field voltage.	generator field current.	generator field impedance.
1124	A step-up transformer is one in which the number of turns on the secondary winding is :	the same as the primary if the cable diameter is the same.	greater than that on the primary.	less than on the primary.	always the same as on the primary.
1125	In a reactive circuit :	the voltage and current will be out of phase.	the voltage and current will be in phase opposition.	the voltage will always be led by the current.	the voltage and current will be in phase.
1126	The power output of a transformer is :	in proportion to the transformation ratio.	in inverse proportion to the transformation ratio.	the same as the power input.	increased in a step up transformer.
1127	In a DC circuit, an inductance :	never has any effect on the voltage.	only affects the voltage upon switching on.	offers opposition to the flow while switching on and off.	will always increase the voltage.
1128	With no load across the output terminals of a transformer :	the current flow will be maximum.	the current flow will be negligible.	the current will be in phase with the voltage.	the voltage in the primary will be always greater than the secondary.
1129	A frequency wild alternator must be :	paralleled.	a rotating magnet type.	self exciting.	unparalleled.
1130	If the voltage induced in the secondary windings is greater than that in the primary then the transformer is :	an autotransformer.	a step up.	a step down.	a magnetic amplifier.
1131	The generator output voltage is increased by :	putting more load on it.	the frequency controller.	decreasing the generator field voltage.	increasing the generator field current.

1132	An alternator normally used to supply an aircrafts power system would be :	single phase.	three phase.	two phase.	frequency wild.
1133	Voltage control of an alternator output is achieved by varying the :	excitation of the rotating commutator.	load current.	excitation of the rotating field.	power factor.
1134	In a star connected supply system :	line and phase current are equal.	line current is greater than phase current.	line current is less than phase current.	phase current is 0.707 times line current.
1135	In an inductive circuit :	current leads the voltage.	current lags the voltage.	the voltage is in phase with the current.	only the r.m.s. values vary.
1136	One advantage of three phase generation over single phase generation is that:	most aircraft services require a three phase supply.	it can be more easily transformed into DC	it gives more compact generators and allows lower cable weights.	the power factor is much lower.
1137	An alternator with its output taken from its stationary armature, has :	a stationary field.	its field excitation fed directly to the armature.	AC excitation.	a rotating field.
1138	If one phase of a star wound three phase system becomes earthed, it will :	earth all three phases.	cause a large current to flow in the neutral.	have no effect on the other phases.	cause a reduction in the frequency of the supply.
1139	The alternators fitted in an aircrafts main power supply system would normally be :	brushed self excited machines.	frequency wild.	self excited.	externally excited.
1140	A voltage regulator works by: -	sensing the battery voltage.	assessing the impedance of the circuit.	varying the circuit voltage.	varying the rotating field strength.
1141	Reactive load sharing is achieved by :-	altering the loads on the bus bars.	varying the generator rotational speed.	varying the generator field current.	altering the C.S.D.U output torque.
1142	The phase relationship of paralleled generators should be ;-	unimportant.	180° apart.	synchronous.	120° apart.
1143	An aircrafts constant frequency supply is maintained at :-	between 350 - 450 Hz.	between 380 - 420 Hz.	between 1 15 - 200 Hz.	between 395 - 495 Hz.
1144	Oil for the operation of a C.S.D.U. is :	supplied from the engine oil system.	a separate self contained supply.	drawn from a common tank for all S.D.U.s.	only required for lubrication purposes.
1145	Before two constant frequency AC generators can be connected in parallel :	their frequency, phase, phase sequence and voltage must match, and a means of automatic real and reactive load sharing must be available.	real and reactive loads must match. Frequency, phase and voltage must be within limits.	the synchronization lights on the alternator control panel must be fully bright.	suitable control arrangements must exist for the sharing of real and reactive loads. these will correct any phase or frequency error existing at the time of

					connection.
1146	The running excitation current for an alternator is :	AC	DC from the aircraft batteries.	DC from the static inverter.	DC which is rectified AC and could be from a separate excitation generator on the main rotor shaft.
1147	Protection from 'earth' faults and 'line to line' faults is given by :	a negative earth detector.	a fault protection system including a differential protection monitor.	the synchronization unit.	reactive load sharing circuits.
1148	Alternators in parallel operation require the maintenance of constant frequency and phase synchronization to :	balance the battery voltage when more than one battery is being used.	prevent re-circulating currents.	control their voltage.	reduce their magnetic fields.
1149	The purpose of the differential protection circuit in a three phase AC system is :	to compare alternator output current to bus bar current.	to compare on and off load currents.	to compare the alternators reactive load to its real load.	to compare theC.S.D.U. efficiencyratings.
1150	The purpose of a synchronizing bus bar is to :	enable interconnections to be made between generator bus bars.	supply essential services.	monitor on-load currents.	interconnect DC bus bars.
1151	The load meter, upon selection to "kVAR" would indicate :	total power available.	reactive loads.	active loads.	only DC resistive loads.
1152	To increase the real load taken by a paralleled AC generator, the :	generator drive torque is increased.	generator excitation is increased.	generator drive torque and field excitation are increased.	generator voltage regulator adjusts the generator rotor torque.
1153	Paralleled alternators will have :	one load meter which measures total system load.	one voltmeter for each alternator.	one load meter for each alternator.	one meter which indicates both voltage and frequency.
1154	If the C.S.D.U. drive disconnect unit had been used, the drive can :	only be reconnected when the aircraft is on the ground.	be reinstated in flight from the electrical supply department.	be reinstated in flight from the flight deck.	be reinstated when necessary by using the Ram Air Turbine.
1155	An AC generator's I.D.U. oil system:	is self contained.	is common with the engine oil system.	is used only for cooling.	is used only for lubrication.
1156	The load in a paralleled AC system is measured in :	kW & kV	kW & kV.	kV &kVAR.	kW &kVAR.
1157	One advantage of running alternators in parallel is that :	the supply to all circuits is in phase.	a large capacity is available to absorb heavy transient loads	the risk of overloading the system is reduced.	there is only a requirement for one C.S.D.U.

			when switching of heavy currents occurs.		
1158	The output of an alternator is rated in :	kVA	WAR.	kW.	kw/kVAR.
1159	In a frequency wild generation system :	generators can be run in parallel only when all engine r.p.m.s match.	generators can never be run in parallel and there can be no duplication of supply.	generators can never be run in parallel, but after rectification, the D,C, can be fed to a common bus bar to provide a redundancy of supply.	capacitive and inductive loads can be fed with no problems of overheating.
1160	Fuses and circuit breakers are fitted :	in DC circuits only.	in both AC and DC circuits.	in AC circuits only.	only to protect the wiring.
1161	A low reactive load on one generator is compensated for by :	altering the excitation current flowing in its field circuit.	increasing the rotor speed.	increasing the real load on the other generators.	overall load reduction.
1162	To increase the real load which is being taken by a paralleled alternator:	the voltage regulator adjusts the generator rotor torque.	both its drive torque and its excitation are increased.	only its excitation is increased.	its drive torque is increased.
1163	In a split bus system using non-paralleled constant frequency alternators as the primary power source :	essential AC loads are supplied directly from N° 1 AC bus bar.	essential AC loads are supplied directly from N° 2 AC bus bar.	only non-essential AC loads are supplied from the AC bus bars.	essential AC loads are normally supplied from N° 1 AC bus bar via the changeover relay.
1164	In normal operation, the split bus bar AC system takes its DC supply from :	two T.R.U.s which are always isolated.	a battery which is supplied from N° 1 T.R.U. only.	two T.R.U.s which are connected together by the isolation relay.	the static inverter.
1165	In the split bus system, the AC bus bars :	are automatically connected via the isolation relay if one alternator fails.	are automatically connected via the bus tie breaker if one alternator fails.	can be connected together by switch selection if one alternator fails.	can never be connected together because there is no load sharing circuit.
1166	In a parallel alternator operation, should one alternator fail, then :	the other alternators can be selected to supply its load.	the failed alternators loads will not be supplied.	the G.B. of the failed alternator will remain closed to allow its loads to be supplied by the remaining alternators.	the S.S.B. will close allowing the three remaining alternators to share all of the load.
1167	An earth fault on a bus bar of a parallel generator system :	would require that the appropriate G.C.B. should open.	would require that the appropriate T. should open.	would require that both the appropriate G.C.B. and B.T.B.	would require that all alternators should operate independently.

				should open.	
1168	If external power is plugged into an aircraft which utilizes the split bus system of power distribution, then :	it will automatically parallel itself with any alternators already on line.	it will only supply non-essential AC consumers.	it will supply all the aircraft services.	essential AC consumers will be supplied from the static inverter.
1169	Reversing two phases to a three phase motor will :	blow the phase fuses.	cause the motor to run in reverse.	overheat the stator windings.	stall the motor.
1170	If one phase of the supply to a three phase motor fails, then :	the motor will continue to run at the same speed.	will slow down and stop.	will stop immediately.	will run at about half speed but will not start on its next selection.
1171	In an induction motor:	the rotor is star connected.	magnetic fields blend evenly with one another.	AC is induced in the rotor.	a DC supply produces DC in the rotor.
1172	An induction motor has :	slip rings and brushes.	a commutator.	no slip ring or brushes.	slip rings but no brushes.
1173	A starting circuit for a powerful single phase induction motor might be :	a capacitance starter.	a resistance / inductance starter.	a cartridge starter.	a bump starter.
1174	The Central Processing Unit (CPU) consists of	input device,output device and Arithmetic Logic Unit (ALU)	input device,Hard disk and output device	Hard disk, Control Unit and Shift Registers	Arithmetic Logic Unit (ALU), Shift Registers and Control Unit
1175	The two types of binary logic are:	positive and negative	variable and negative	positive and reversible	variable and reversible
1176	In computer terminology a memory which loses its data when power is removed is called:	non-volatile	non permanent	non-retentive	volatile
1177	Examples of input peripheral devices are:	mouse and screen display unit.	mouse,modem and keyboard.	keyboard and printer.	mouse,modem and printer.
1178	In computer terminology "hardware" refers to:	the digital computer components, keyboard, monitor, CPU, etc	the permanent memory system and its capacity	the RAM capacity	the programme of instructions
1179	The smallest information element in a digital system is:	byte	digit	electron	bit
1180	Convert the decimal number 7 to its binary equivalent:	1110	111	1101	100
1181	The computer language in which calculations are carried out and information is stored in memory is:	decimal	hexadecimal	octal	binary
1182	The computer language system which uses the base 8 is called:	decimal	binary	octal	hexadecimal

1183	In a digital computer binary 1 is represented by +5 volts and Binary 0 by earth. This is an example of:	negative logic	bipolar logic	positive logic	analog system
1184	The permanent memory of a digital computer usually takes the form of:	Integrated circuits rated in megabytes	shift registers whose capacity is rated in mega or gigabytes	floppy or hard disks whose capacity is measured in mega or gigabytes	Central Processing Unit
1185	Within the Central Processing Unit, the temporary stores and accumulator which handle the data during processing are called:	Arithmetic Logic Unit (ALU)	Shift Registers	Control Unit	BIOS
1186	Phase comparison is only possible between two signals with the same:	Amplitude	Frequency	Amplitude and frequency	Plane of polarization
1187	A signal with a wavelength of 7360 metres lies in the:	VLF band	LF band	MF band	HF band
1188	A maritime reconnaissance aircraft using primary pulsed air to surface radar first detects a large vessel on this radar at a range of 110 NM. Considering only line of sight limitations of the system the aircraft altitude must be approximately:	230 ft	790 ft	2300 ft	7700 ft
1189	The wavelength corresponding to a frequency of 108.95 MHz is:	0.275 m	275 m	27.5 m	2.75 m
1190	The optimum frequency of an HF signal is one which:	Puts the receiver just within the surface wave coverage	Puts the receiver just within the minimum skip distance	Puts the receiver just outside the minimum skip distance	Allows a skywave to return to the surface
1191	A transmitter polar diagram is a line joining:	Points bounding the limits of reception	Points at which the signal to noise ratio will be 3 : 1	Points at which the signal to noise ratio will be 5 : 1	Points at which the signal strength will be equal
1192	The type of modulation described as A3E is used in:	ILS equipment	VHF communications	HF single side band communications	Doppler VOR
1193	Atmospheric ducting is most likely to occur close to the surface of the earth when:	There is a marked inversion and no change in humidity with height	There is a marked inversion and a marked increase in humidity with height	There is a marked inversion and a marked decrease in humidity with height	Over the sea
1194	VLF surface waves achieve a greater range than LF surface waves because:	VLF diffraction is greater and attenuation is less	VLF diffraction and attenuation are less	VLF diffraction is less and attenuation is greater	VLF diffraction and attenuation are greater

1195	The maximum theoretical range at which an aircraft at FL225 can receive signals from a VOR situated at 1600 ft AMSL is:	194 NM	The DOC limit	237.5 NM	68.75 NM
1196	As frequency increases:	Wavelength decreases and antenna size increases	Wavelength decreases and power requirements increase	Wavelength increases and antenna size decreases	Wavelength decreases and antenna size decreases
1197	Frequency modulation techniques are not used in the LF/MF/HF bands because:	The power requirements would be too high	Naturally occurring static would swamp the signal	The large bandwidth required is not available in these congested bands	Frequency modulation had not been invented when frequencies in these bands were allocated to users
1198	The purpose of a basic Oscillator is to:	amplify a signal	attenuate a signal	produce a sine wave from a DC input	increase the frequency of a sine wave
1199	An electrical resonant circuit is constructed from:	resistors and inductors in series	inductors and resistors in series or parallel	inductors and resistors always in parallel	capacitor and inductor which may be in parallel or series
1200	The advantages of single sideband over double sideband communications systems are:	Bandwidth halved/power output many times greater	Bandwidth halved/signal to noise ratio greater/more power may be transmitted	Bandwidth reduced by 2/3 better signal to noise ratio greater	Bandwidth reduced by 1/3 power output reduced