1. A condenser is used in the magneto to:

a) **Assist in creating a high voltage in the secondary coil by causing a rapid change**

**of flux in the primary coil**

b) To increase the voltage in the primary coil by using electricity from the battery.

c) To condense the low tension output into the HT

2. A constant speeding propeller is one which:

a) The blade pitch remains constant

b) **The propellers pitch angle is altered to maintain the rotational speed constant**

c) Is selected to coarse on take off and fully fine when cruising

3. A cylinder head temperature gauge is powered by:

a) 28v DC

b) an inverter

c**) A thermocouple**

4. A fuel grade which is used in typical light aircraft piston engine (spark ignition -

not diesel) is:

a) **AVGAS 100LL**

b) AVTAG

c) JET A1

5. A fuel injected engine can be primed by:

a) A manual priming pump which delivers fuel to the discharge nozzles

b) Pumping the throttle lever while turning the engine over on the starter motor

c**) An electric fuel pump delivering fuel to the discharge nozzles**

6. A fuel strainer should be fitted:

a) **Before the main jet of a carburetor**

b) After the main jet of a carburetor

c) In the inlet manifold

7. A high oil temperature would indicate that:

a) The oil pressure was high

b) The oil filter was blocked

c) **The air intake of the oil cooler was blocked**

8. A method of improving "Volumetric Efficiency" is:

a) **Valve overlap**

b) Richening the mixture

c) Weakening the mixture

9. A normally aspirated engine is one which:

a) Is never air cooled

b) Is all of the above

c) **Is not supercharged**

10. A piston engine ignition system where the ignition switch is shorted out at one

magneto would result in:

a) No drop in RPM when the other magneto is switched off

b) Inability of the engine to start

c) **The engine stopping when the other magneto is switched off**

11. A pressure cut out switch is fitted in a propeller feathering system to:

a) Stop the governor pump

b) **Stop the feathering pump motor**

c) Stop the generators

12. A propeller blade is twisted along its length:

a) **To maintain a constant angle of attack from root to the tip of the blade**

b) To reduce the effective pitch

c) To decrease thrust from root to tip

13. A propeller which is windmilling:

a) Rotates the engine in reverse and gives drag

b) Rotates the engine in the normal direction and gives some thrust

c) **Rotates the engine in the normal direction and gives drag**

14. A reduction gear is:

a) The gear between the propeller and engine making the engine speed slower than

the propeller

b) **The gear between the propeller and engine making the propeller turn slower than**

**the engine crankshaft**

c) Fitted to allow a reduction of RPM in the cruise and so improve the fuel

consumption

15. A reverse pitch propeller is:

a) **A propeller which can be turned to a negative pitch to provide braking**

b) A propeller which reverses its direction of rotation to provide braking

c) A propeller which varies from coarse to fine pitch naturally on landing

16. A reverse-pitch propeller is :

a) Is used to counteract windmilling drag

b) A propeller which varies from coarse to fine pitch automatically

c) **Where the blade pitch has been reduced to a negative pitch to reduce the**

**aircraft’s speed**

17. A rich mixture at slow running could be caused by:

a) A partially blocked main jet

b) The float chamber level being too low

c) **The priming pump being left open**

18. A rich mixture is supplied to the cylinder at take off and climb

a**) To cool the charge temperature and prevent detonation**

b) To give greater thermal efficiency

c) To increase the volumetric efficiency

19. A right hand propeller:

a) Is a propeller mounted in front of the engine

b) **Rotates in a clockwise direction when viewed from the rear**

c) Rotates in an anti-clockwise direction when viewed from the rear

20. A single acting variable pitch propeller is one in which:

a) The propeller can only be in fine or coarse pitch

b) There are two cockpit control levers for propeller pitch

c) **The propeller pitch is changed in one direction by oil pressure and in the other**

**direction by spring or gas pressure**

21. A supercharger is fitted in order to:

a) **Assist in overcoming the decrease in pressure and density at altitude**

b) Minimise the risk of detonation

c) Reduce the power to weight ratio

d) Enable the use of higher octane fuels

22. A supercharger may require an intercooler to be placed:

a) Between each cylinder

b) At the carburetor intake

c) **Between the supercharger outlet and the inlet valve**

23. A turbo-charger which is designed to maintain sea level pressure at altitude is

termed:

a) A booster-supercharger

b) An internal supercharger

**c) An altitude boosted turbo-charger**

24. A turbo-charger's rotational speed is determined by:

a) The density of the air at the compressor intake

b) Throttling the exhaust inlet to the impeller

**c) Controlling the diversion of exhaust gas**

25. A weak mixture would be indicated by:

a) White smoke in the exhaust manifold

b) **A drop in engine speed**

c) An increase in engine speed with black smoke from the exhaust

26. After engine start the starter engaged warning light remains lit. The correct action

would be:

a) Shut down within 30 seconds

b**) Shut down immediately**

c) Continue with the after start checks as this is normal

27. Air enters the compressor of a turbo-supercharger:

a) At the diffuser and exits at the impeller

b) At the eye and passes across the diffuser blades before exiting at the impeller tip

c**) At the eye and passes across the impeller blades to exit at the tip**

d) At the tip and passes across the impeller blades to exit at the eye

28. Air enters the impeller of the compressor of a turbo-supercharger:

a) At the eye and passes across the diffuser blades before exiting at the impeller tip

b) Tangentially into the diffuser and exits tangentially at the impeller

c**) Axially into the eye and increases in velocity through the impeller vanes to exit at**

**the tip of the impeller tangentially.**

29. An accumulator may be fitted into a single acting propeller control system to

provide a supply of oil:

a) **To initiate propeller unfeathering**

b) To complete the feathering process

c) In case the normal system fails

30. An air/fuel ratio of 9:1 would be considered:

a) Weak

b) Extravagant

c) **Rich**

31. An aircraft with a fixed pitch propeller goes into a climb with reduced IAS and

increased rev/min. The propeller:

a) Angle of attack will decrease

c) Angle of attack will remain the same

**c) Angle of attack will increase**

32. An Auto -- Feathering system senses:

a) No torque or no RPM

b) Decreasing RPM

c) **Low torque or negative torque**

33. An Automatic Boost Control Unit:

a) Maintains a pre-set boost pressure

b) Sets the position of the waste gate to ensure the pre-set boost is maintained

c) **Maintains the correct mixture strength for the boost pressure set**

34. An engine which is fitted with fuel injection:

a) Cannot be started by swinging the propeller

b) **Will not suffer from carburetor icing**

c) Will never encounter hydraulicing

35. An ignition switch which is shorted out at one engine magneto would result in:

a) Inability of the engine to start

b) **A dead cut when the other magneto is switched off**

c) The generator being tripped off line

36. An impulse starter is a device to assist in starting an engine which uses:

a) **A spring to temporarily increase the speed of rotation of the magneto**

b) An explosive inserted in a special tube

c) A special starting battery which provides a sudden impulse of electricity to the

plugs

37. An internal supercharger is one which:

a) Is driven by exhaust gases

b) **Compresses the mixture**

c) Compresses the air

38..re the effects of an excessively rich mixture as dangerous as those of a weak

mixture?

a) Always

b**) No**

c) Only when experienced for short periods

39. As air flows into the converging section of a venturi tube:

a) Static pressure decreases velocity increases mass flow decreases

b) **Static pressure decreases velocity increases mass flow is constant**

c) Static pressure decreases velocity decreases mass flow decreases

40. As engine speed increases the position of the ignition spark is:

a) Only retarded

b) Not altered

c) **Advanced**

41. At an idle or low power condition the turbo-charger waste gate is normally:

a) Fully open

b) Half open

**c) Closed**

42. At what mixture and carburetor heat setting is a take-off normally carried out?

a) Fully rich and carburetor heat fully on

b) Fully weak and carburetor heat fully off

**c) Fully rich and carburetor heat fully off**

43. At what RPM is a Magneto dead cut check carried out?

a) At reference RPM

b) During the Magneto drop check

**c) At ground warm-up RPM**

44. Aviation gasoline that contains tetra ethyl lead can be identified by:

a) Its volatility

b) Its smell

c**) Its colour**

45. Because of the reduction in the density of the atmosphere associated with an

increase in altitude:

a) The throttle must be closed progressively to maintain the best air/fuel ratio

b) The octane rating of the fuel must be increased

**c) The mixture control must be moved towards the weak position**

46. Boost pressure is indicated on:

a) **The manifold pressure gauge**

b) The cylinder head temperature gauge

c) The fuel pressure gauge

47. Boost pressure is the:

a**) Inlet manifold pressure above or below standard mean sea level pressure**

b) Absolute pressure in the inlet manifold measured in millibars

c) Absolute pressure in the inlet manifold measured in inches of mercury

48. Combustion in a four stroke engine theoretically occurs at:

a) **A constant volume**

b) A constant velocity

c) A constant temperature

49. Counter - rotating propellers are

a) Two propellers driven by separate engines rotating in the same direction

b) Two propellers driven by the same engine rotation in opposite directions

**c) Two propellers driven by separate engines rotating in opposite directions**

50. Detonation is liable to occur in the cylinders:

**a) With high power set and high cylinder head temperature**

b) With a rich mixture at high power settings

c) At very low engine speed

51. During a climb in an aircraft with an internally driven supercharger set to a

constant RPM with a constant manifold pressure the power output of the engine

increases because of:

a) The decreasing density of the atmosphere

b) The increasing charge temperature

**c) The reducing exhaust back pressure**

52. During take-off from a sea level airfield with I.S.A. conditions the position of the

waste gate of a turbo-charged engine is:

a) Fully open

**b) Almost fully open**

c) Controlled by the throttle position

53. During the induction stroke

a) The mixture becomes weaker

b) The volume of the gases becomes smaller

**c) The temperature of the gases reduces**

54. During the period of valve overlap

a) The crankshaft is moving past Bottom Dead Centre

**b) The action of the exhaust gases flowing out past the exhaust valve tends to**

**reduce the pressure in the cylinder**

c) The action of the exhaust gases flowing past the exhaust valve increases the

pressure within the cylinder

55. During the power stroke of a four stroke piston engine:

a) **The temperature of the gases decreases**

b) The pressure of the gases remains constant

c) The volume of the gases decreases

56. During the take-off run a fixed pitch propeller is:

**a) At too coarse an angle for maximum efficiency**

b) Is at the optimum angle initially but becomes too coarse as speed increases

c) At too fine an angle for maximum efficiency

57. Engine oil pressure in a piston engine with a dry sump system is:

a) Low at idle and high at high RPM

b) Controlled by the oil cooler

**c) Almost unaffected by engine speed**

58. Excessive blue smoke from the exhaust of an engine that has been warmed up

to normal operating temperature may indicate that:

a) The mixture is too rich

b) The oil pressure is too low

**c) The piston rings are worn or stuck in their grooves**

59. Excessive cylinder head temperatures may be caused by:

a) Prolonged use of high RPM

b) The prolonged use of rich mixtures

c) **The prolonged use of weak mixtures**

60. Excessive valve clearance

a) Will cause the valve to open early and close late

b) Is eliminated when the engine reaches working temperature

c**) Will cause the valve to open late and close early**

61. Flame Rate is the term used to describe the speed at which:

a) Fulminates form within the cylinder

**b) The mixture burns within the cylinder**

c) Peroxide forms within the cylinder

62. For a twin engined aircraft with counter rotating propellers:

a) Blade effect still determines the critical engine

b) The torque reaction will be cancelled but there will be a gyroscopic effect and

there will be a critical engine

**c) The torque and gyroscopic effects will be cancelled and there is no critical engine**

62. For an aircraft with a fixed pitch propeller efficiency will be:

a) Low at low speed high at high speed

**b) Low at both low and high speed and highest at cruising speed**

c) High at low speed low at high speed

63. For an aircraft with a fixed pitch propeller an increase in rev/min during the takeoff

run at full throttle is due to:

a) An increase in propeller blade slip

b) The engine overspeeding

**c) A more efficient propeller blade angle of attack**

64. For best economy while in the cruise in an aircraft fitted with a fixed pitch

propeller how should the mixture strength be set up?

a) A little on the rich side of chemically correct (25-50 RPM low)

b) Exactly at the chemically correct (stoichiometric) air fuel ratio

**c) A little on the weak side of chemically correct (25-50 RPM low)**

65. For maximum endurance the mixture control should be set to:

a) The chemically correct state

b) **Slightly weaker than the chemically correct ratio.**

c) Rich

66. Full throttle height in a supercharged engine is determined by:

a) The position of the power lever only

b) The position of the pitch lever only

**c) The manifold pressure and the RPM**

67. Full Throttle Height is:

a) The height at which the engine is at Rated Boost

b) **The maximum height at which a specified boost can be maintained at a specified**

**RPM**

c) The cruising height for any specific boost

68. Hydraulic valve tappets are used on some engines to:

**a) Eliminate constant valve adjustment and checks**

b) Give a more positive closing action

c) Give a more positive opening action

69. Ideally maximum pressure is attained within the cylinder:

a) At the end of the compression stroke

b) During the period of valve overlap

**c) When combustion temperature is at a minimum**

70. If during a Magneto drop check the engine cuts what action must be taken?

a) Decrease RPM to idle for no more than 1 minute. Reselect reference RPM and

recheck

b) Select the other magneto increase RPM to burn off the plug fouling and recheck

**c) The engine must remain stopped and the mixture set to ICO (idle cut off)**

71. If during a Magneto drop check there is no change in engine RPM what is the

likely cause?

a) A really good ignition system

b**) A fault in the Magneto switching system**

c) Impossible there will always be a drop in RPM

72. If engine power is increased with the propeller lever set in the constant speed

range RPM will tend to increase then:

a) Propeller will maintain the same blade angle

b) Propeller blade will move towards a finer pitch

**c) Propeller blade will move towards a coarser pitch**

73. If it required to increase the RPM of a variable pitch propeller without moving the

power lever the propeller lever must be moved:

a) Backwards the governor weights move inwards blade angle increases

b) Backward the governor weights move outwards blade angle decreases

**c) Forwards the governor weights move inwards blade angle decreases**

74. If oil pressure does not rise within 30 seconds of engine start your action would

be:

a) Wait 60 seconds and shut down if the pressure is still low

**b) Shut down immediately**

c) Increase RPM quickly to try and unseat the relief valve

75. If the propeller blade angle is increased:

a) It has no effect on the pitch of the blade

b) The pitch becomes finer

**c) The pitch becomes coarser**

76. If the RPM of a Crankshaft driving a variable pitch propeller tends to decrease:

a) The RPM lever will tend to move and oppose the drift

b) The blade angle is unchanged

**c) The blade angle decreases**

77. If the Starter Engaged Light remains on after engine start you should:

a) Ignore it if it remains on for longer than 30 seconds

b) Shut the engine down if it remains on for more than 30 seconds

**c) Shut the engine down immediately**

d) Shut the engine down if the light remains on for more than 60 seconds

78. If the temperature increases the power required to maintain a constant rev/min

with a fixed pitch propeller will:

a) Depend on the cruising altitude

b) Remain the same

**c) Decrease**

79. If the volume of a quantity of gas is compressed until its volume is halved:

a) Its temperature remains constant

b) Its pressure remains constant

**c) Its pressure is approximately doubled**

80. If the waste gate of a turbo-charged engine seizes in the climb before critical

altitude has been reached:

a) Engine power will rise by approximately 10%

b) Reducing back pressure will compensate for any loss in power

**c) Engine power will fall as the climb continues**

81. Immediately an engine has started up what is the first instrument reading to be

checked?

a) Gyro erection

b) Vacuum

**c) Oil pressure**

82. In a carburetion system what is the most common cause of a faulty mixture?

a) Fuel pump malfunctions

**b) Mishandling of the mixture control**

c) Blown gaskets

83. In a piston engine the oil temperature and pressure are sensed:

a) At the same point

b) For the oil temperature when the oil is entering the tank and for the pressure

when it is entering the pressure pump

**c) For the temperature when the oil is leaving the tank and for the pressure when**

**the oil is leaving the pressure pump**

84. In a supercharged engine with an increase of compressor discharge pressure the

fuel flow will:

a) Decrease

b) Increase but only in proportion to altitude increase

**c) Increase**

85. In a supercharger the mixture:

a) Enters at the periphery and leaves through the eye

b) Enters through the compressor and leaves through the turbine

**c) Enters through the eye of the impeller and leaves at the periphery**

86. In a turbocharger manifold pressure is maintained by a (i)..... at full throttle

operation and a (ii) ..... at other than full throttle operation

a) (i) Absolute pressure controller...............(ii) differential pressure controller

b) (i) Variable pressure controller...............(ii) absolute pressure controller

**c) (i) density controller.................................(ii) differential pressure controller**

87. In a wet sump oil system the oil is contained in the:

a) Tank and oil cooler

b) Engine and tank

**c) Engine and sump**

88. In an air cooled aero-engine cooling air is directed around the cylinders

a) By controllable cowl gills

b) By metered jets

**c) By means of suitably shaped cylinder baffles**

89. In an attempt to maintain the correct air/fuel ratio while climbing into the

decreased density air of higher altitude:

a) The valve timing can be changed

b) A diffuser is fitted

**c) A mixture control is used**

90. In order to prevent an over rich mixture after engine start-up what precaution

must be observed?

a) The Throttle lever must be set to a warm-up RPM of 700

b) The Tank Booster Pump must be switched OFF

**c) The Priming Pump must be locked OFF**

91. In the intake of a fuel injected engine:

a) Both a throttle valve and a Venturi are required

**b) There will be a throttle valve but no Venturi**

c) There will be a Venturi but no throttle valve

92. In the internal combustion engine detonation occurs due to:

**a) Excessive combustion temperatures and pressures**

b) The use of too high an RPM with too little manifold pressure

c) The cylinder temperatures and pressures being too low

d) The use of the wrong grade of oil

93. Insufficient tappet clearance at the inlet valve would cause:

**a) The valve to open early and close late**

b) The mixture in the cylinder to be weak

c) The valve to open late and close early

94. It would normally be considered dangerous to pump the throttle lever when

starting an engine because:

**a) It could increase the risk of fire in the carburetor air intake**

b) It would prevent the engine starting

c) It would richen the mixture to the point where spontaneous combustion would

occur in the combustion chamber

95. Magnetos should be checked at slow running to ensure that:

**a) The control of the ignition system is correct before an ignition check is carried out**

at a higher power

b) Sparking plugs are working

c) Both sparking plugs are functioning correctly in individual cylinders

96. Maintaining a constant manifold pressure in a turbo-charged engine during the

climb below critical altitude will cause:

a) The waste gate to open

**b) The waste gate to progressively close**

c) The diffuser rotational speed to increase

97. Maximum Continuous Power (MCP) is:

a) The maximum power the engine will give at any time

b) Unrestricted but only if economical cruising power is set

**c) Unrestricted**

98. Oil returning to the oil tank is filtered by:

a**) The scavenge filter**

b) A micron size multibore filter assembly

c) The oil pressure filter

99. On the ground before starting the engine the Manifold Pressure Gauge will read:

a) Mean sea level pressure

b) Zero

**c) Ambient pressure**

100. On the runway in the initial stages of the take off with a fixed pitch propeller how

would the maximum achieved RPM compare with the airborne RPM?

a) Runway RPM would be higher than airborne RPM

b) They would be the same

c**) Runway RPM would be lower than airborne RPM**