

250 TOP I.C. Engines - Mechanical Engineering Multiple choice Questions and Answers List

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1. The working cycle in case of four stroke engine is completed in following number of revolutions of crankshaft

- (a) 1/2
- (b) 1
- (c) 2
- (d) 4
- (e) 8.

Ans: c

2. In a diesel engine, the fuel is ignited by

- (a) spark
- (b) injected fuel
- (c) heat resulting from compressing air that is supplied for combustion
- (d) ignition
- (e) combustion chamber.

Ans: c

3. Scavenging air in diesel engine means

- (a) air used for combustion sent under pres-sure
- (b) forced air for cooling cylinder
- (c) burnt air containing products of combustion
- (d) air used for forcing burnt gases out of engine's cylinder during the exhaust period
- (e) air fuel mixture.

Ans: d

4. Supercharging is the process of

- (a) supplying the intake of an engine with air at a density greater than the density of the surrounding atmosphere
- (b) providing forced cooling air
- (c) injecting excess fuel for raising more load
- (d) supplying compressed air to remove combustion products fully
- (e) raising exhaust pressure.

Ans: a

5. Does the supply of scavenging air at a density greater than that of atmosphere mean engine is

supercharged ?

- (a) yes
- (b) no
- (c) to some extent
- (d) unpredictable
- (e) depends on other factors.

Ans: b

6. The ratio of indicated thermal efficiency to the corresponding air standard cycle efficiency is called

- (a) net efficiency
- (b) efficiency ratio
- (c) relative efficiency
- (d) overall efficiency
- (e) cycle efficiency.

Ans: c

7. Compression ratio of I.C. engines is

- (a) the ratio of volumes of air in cylinder before compression stroke and after compression stroke
- (b) volume displaced by piston per stroke and clearance volume in cylinder
- (c) ratio of pressure after compression and before compression
- (d) swept volume/cylinder volume
- (e) cylinder volume/swept volume.

Ans: a

8. The air standard efficiency of an Otto cycle compared to diesel cycle for the given compression ratio is

- (a) same
- (b) less
- (c) more
- (d) more or less depending on power rating
- (e) unpredictable.

Ans: c

9. The calorific value of gaseous fuels is expressed in terms of

- (a) kcal
- (b) kcal/kg
- (c) kcal/m²
- (d) kcal/n?
- (e) all of the above.

Ans: d

11. If the intake air temperature of I.C. engine increases, its efficiency will

- (a) increase
- (b) decrease
- (c) remain same
- (d) unpredictable
- (e) depend on other factors.

Ans: b

12. All heat engines utilize

- (a) low heat value of oil
- (b) high heat value of oil
- (c) net calorific value of oil
- (d) calorific value of fuel
- (e) all of the above.

Ans: a

13. An engine indicator is used to determine the following

- (a) speed
- (b) temperature
- (c) volume of cylinder
- (d) m.e.p. and I.H.P.
- (e) BHP.

Ans: d

14. Fuel oil consumption guarantees for I.C. engine are usually based on

- (a) low heat value of oil
- (b) high heat value of oil
- (c) net calorific value of oil
- (d) calorific value of fuel
- (e) all of the above.

Ans: b

17. If the compression ratio of an engine working on Otto cycle is increased from 5 to 7, the %age increase in efficiency will be

- (a) 2%
- (b) 4%
- (c) 8%
- (d) 14%
- (e) 27%.

Ans: d

18. In case of gas turbines, the gaseous fuel consumption guarantees are based on

- (a) high heat value

- (b) low heat value
- (c) net calorific value
- (d) middle heat value
- (e) calorific value.

Ans: b

19. In a typical medium speed 4-stroke cycle diesel engine the inlet valve

- (a) opens at 20° before top dead center and closes at 35° after the bottom dead center
- (b) opens at top dead center and closes at bottom dead center
- (c) opens at 10° after top dead center and closes 20° before the bottom dead center
- (d) may open or close anywhere
- (e) remains open for 200° .

Ans: a

20. The pressure and temperature at the end of compression stroke in a petrol engine are of the order of

- (a) 4 - 6 kg/cm² and 200 - 250°C
- (b) 6 - 12 kg/cm² and 250 - 350°C
- (c) 12 - 20 kg/cm² and 350 - 450°C
- (d) 20 - 30 kg/cm² and 450 - 500°C
- (e) 30 - 40 kg/cm² and 500 - 700°C.

Ans: b

21. The pressure at the end of compression in the case of diesel engine is of the order of

- (a) 6 kg/cm
- (b) 12kg/cmz
- (c) 20 kg/cmz
- (d) 27.5 kg/cmz
- (e) 35 kg/cm

Ans: e

22. The maximum temperature in the I.C. engine cylinder is of the order of

- (a) 500- 1000°C
- (b) 1000- 1500°C
- (c) 1500-2000°C
- (d) 2000-2500°C
- (e) 2500-3000°C

Ans: d

23. The thermal efficiencty of a diesel cycle having fixed compression ratio, with increase in cut-off ratio will

- (a) increase

- (b) decrease
- (c) be independent
- (d) may increase or decrease depending on other factors
- (e) none of the above.

Ans: b

24. Pick up the wrong statement

- (a) 2-stroke engine can run in any direction
- (b) In 4-stroke engine, a power stroke is obtained in 4-strokes
- (c) thermal efficiency of 4-stroke engine is more due to positive scavenging
- (d) petrol engines work on otto cycle
- (e) petrol engines occupy more space than diesel engines for same power output.

Ans: e

25. Combustion in compression ignition engines is

- (a) homogeneous
- (b) heterogeneous
- (c) both (a) and (b)
- (d) laminar
- (e) turbulent.

Ans: b

26. The fuel in diesel engine is normally injected at pressure of

- (a) 5-10 kg/cm²
- (b) 20-25 kg/cm²
- (c) 60-80 kg/cm²
- (d) 90-130 kg/cm²
- (e) 150-250 kg/cm²

Ans: d

27. The specific fuel consumption per BHP hour for diesel engine is approximately

- (a) 0.15 kg
- (b) 0.2 kg
- (c) 0.25 kg
- (d) 0.3 kg
- (e) 0.35 kg.

Ans: b

28. The temperature of interior surface of cylinder wall in normal operation is not allowed to exceed

- (a) 80°C
- (b) 120°C
- (c) 180°C

(d) 240°C

(e) 320°C.

Ans: c

30. Crankcase explosion in I.C. engines usually occurs as

(a) first a mild explosion followed by a big explosion

(b) first a big explosion followed by a mild explosion

(c) both mild and big explosions occur simultaneously

(d) never occurs

(e) unpredictable.

Ans: a

31. Compression loss in I.C engines occurs due to

(a) leaking piston rings

(b) use of thick head gasket

(c) clogged air-inlet slots

(d) increase in clearance volume caused by bearing-bushing wear

(e) all of the above.

Ans: e

32. The specific fuel consumption per BHP hour for a petrol engine is approximately

(a) 0.15 kg

(b) 0.2 kg

(c) 0.25 kg

(d) 0.3kg

(e) 0.35 kg.

Ans: c

33. The air requirement of a petrol engine during starting compared to theoretical air required for complete combustion is

(a) more

(b) less

(c) same

(d) may be more or less depending on engine capacity

(e) unpredictable.

Ans: b

34. The inlet valve of a four stroke cycle I.C engine remains open for nearly

(a) 180°

(b) 125°

(c) 235°

(d) 200°

(e) 275°.

Ans: c

35. Which of the following is not an internal combustion engine

- (a) 2-stroke petrol engine
- (b) 4-stroke petrol engine
- (c) diesel engine
- (d) gas turbine
- (e) steam turbine.

Ans: e

36. Pick up the false statement

- (a) Thermal efficiency of diesel engine is about 34%
- (b) Theoretically correct mixture of air and petrol is approximately 15 : 1
- (c) High speed compression engines operate on dual combustion cycle
- (d) Diesel engines are compression ignition engines
- (e) S.I. engines are quantity-governed engines.

Ans: e

37. If one cylinder of a diesel engine receives more fuel than the others, then for that cylinder the

- (a) exhaust will be smoky
- (b) piston rings would stick into piston grooves
- (c) exhaust temperature will be high
- (d) engine starts overheating
- (e) scavenging occurs.

Ans: e

38. The output of a diesel engine can be increased without increasing the engine revolution or size in following way

- (a) feeding more fuel
- (b) increasing flywheel size
- (c) heating incoming air
- (d) scavenging
- (e) supercharging.

Ans: e

39. If the temperature of intake air in IC engines is lowered, then its efficiency will

- (a) increase
- (b) decrease
- (c) remain same
- (d) increase upto certain limit and then decrease
- (e) decrease upto certain limit and then increase.

Ans: a

40. In a typical medium speed 4-stroke cycle diesel engine

- (a) compression starts at 35° after bottom dead center and ends at top dead center
- (b) compression starts at bottom dead center and ends at top dead center
- (c) compression starts at 10° before bottom dead center and, ends just before top dead center
- (d) may start and end anywhere
- (e) none of the above.

Ans: a

41. For the same compression ratio

- (a) Otto cycle is more efficient than the Diesel
- (b) Diesel cycle is more efficient than Otto
- (c) both Otto and Diesel cycles are, equally efficient
- (d) compression ratio has nothing to do with efficiency
- (e) which is more efficient would depend on engine capacity.

Ans: a

42. The process of breaking up or a liquid into fine droplets by spraying is called

- (a) vaporisation
- (b) carburetion
- (c) ionisation
- (d) injection
- (e) atomisation.

Ans: e

43. As a result of detonation in an I.C. engine, following parameter attains very high value

- (a) peak pressure
- (b) rate of rise of pressure
- (c) rate of rise of temperature
- (d) peak temperature
- (e) rate of rise of horse-power.

Ans: b

44. Which of the following statements is correct?

- (a) All the irreversible engines have same efficiency
- (b) All the reversible engines have same efficiency
- (c) Both Rankine and Carnot cycles have same efficiency between same temperature limits
- (d) All reversible engines working between same temperature limits have same efficiency
- (e) Between same temperature limits, both petrol and diesel engines have same efficiency.

Ans: d

45. Most high speed compression engines operate on

- (a) Diesel cycle
- (b) Otto cycle
- (c) Dual combustion cycle
- (d) Special type of air cycle
- (e) Carnot cycle.

Ans: c

48. The accumulation of carbon in a cylinder results in increase of

- (a) clearance volume
- (b) volumetric efficiency
- (c) ignition time
- (d) effective compression ratio
- (e) valve travel time.

Ans: d

49. Which of the following medium is compressed in a Diesel engine cylinder

- (a) air alone
- (b) air and fuel
- (c) air and lub oil
- (d) fuel alone
- (e) air, fuel and lub oil.

Ans: a

54. The air-fuel ratio of the petrol engine is controlled by

- (a) fuel pump
- (b) governor
- (c) injector
- (d) carburettor
- (e) scavenging.

Ans: d

55. In a typical medium speed, 4-stroke cycle diesel engine

- (a) fuel injection starts at 10° before to dead center and ends at 20° after to dead center
- (b) fuel injection starts at top dead center and ends at 20° after top dead center
- (c) fuel injection starts at just before top dead center and ends just after top dead center
- (d) may start and end anywhere
- (e) none of the above.

Ans: a

56. Diesel fuel, compared to petrol is

- (a) less difficult to ignite

- (b) just about the same difficult to ignite
- (c) more difficult to ignite
- (d) highly ignitable
- (e) none of the above.

Ans: c

57. In diesel engine the diesel fuel injected into cylinder would burn instantly at about compressed air temperature of

- (a) 250°C
- (b) 500°C
- (c) 1000°C
- (d) 150CPC
- (e) 2000°C.

Ans: c

58. When crude oil is heated, then which of the following hydrocarbon is given off first.

- (a) kerosene
- (b) gasoline
- (c) paraffin
- (d) diesel
- (e) natural gas.

Ans: e

59. The rating of a diesel engine, with increase in airtlet temperature, will

- (a) increase linearly
- (b) decrease linearly
- (c) increase parabolically
- (d) decrease parabolically
- (e) first decrease linearly and then increase parabolically.

Ans: b

60. A 75 cc engine has following parameter as 75 cc

- (a) fuel tank capacity
- (b) lub oil capacity
- (c) swept volume
- (d) cylinder volume
- (e) clearance volume.

Ans: c

61. A heat engine utilises the

- (a) calorific value of oil
- (b) low heat value of

- (c) high heat value of oil
- (d) mean heat value of oil
- (e) all of the above.

Ans: c

62. Gaseous-fuel guarantees are based on

- (a) calorific value of oil
- (b) low heat value of oil
- (c) high heat value of oil
- (d) mean heat value of oil
- (e) all of the above.

Ans: b

63. Fuel consumption of diesel engines is not guaranteed at one quarter load because at such low loads

- (a) the friction is high
- (b) the friction is unpredictable
- (c) the small difference in cooling water temperature or in internal friction has a disproportionate effect
- (d) the engine is rarely operated
- (e) none of the above.

Ans: c

64. Polymerisation is a chemical process in which molecules of a compound become

- (a) larger
- (b) slowed down
- (c) smaller
- (d) liquid
- (e) gaseous.

Ans: a

65. The term scavenging is generally associated with

- (a) 2-stroke cycle engines
- (b) 4-stroke cycle engines
- (c) aeroplane engines
- (d) diesel engines
- (e) high efficiency engines.

Ans: e

66. In diesel engine, the compression ratio in comparison to expansion ratio is

- (a) same
- (b) less
- (G) more

- (d) variable
- (e) more/less depending on engine capacity.

Ans: c

67. The cam shaft of a four stroke I.C. engine running at 1500 rpm will run at

- (a) 1500 rpm
- (b) 750 rpm
- (c) 3000 rpm
- (d) any value independent of engine speed
- (e) none of the above.

Ans: b

68. Engine pistons 'are usually made of aluminium alloy because it

- (a) is lighter
- (b) wears less
- (c) absorbs shocks
- (d) is stronger
- (e) does not react with fuel and lub oil.

Ans: a

69. Most high speed compression engines operate on

- (a) Otto cycle
- (b) Diesel cycle
- (c) Dual cycle
- (d) Carnot cycle
- (e) Two stroke cycle.

Ans: c

70. The specific fuel consumption of a petrol engine compared to diesel engine of same H.P. is

- (a) same
- (b) more
- (c) less
- (d) less or more depending on operating conditions
- (e) unpredictable.

Ans: b

71. A diesel engine as compared to petrol engine (both running at rated load) is

- (a) more efficient
- (b) less efficient
- (c) equally efficient
- (d) unpredictable
- (e) other factors will decide it.

Ans: a

72. The size of inlet valve of an engine in comparison to exhaust valve is

- (a) more
- (b) less
- (c) same
- (d) more/less depending on capacity of engine
- (e) varies from design to design.

Ans: b

74. In a cycle, the spark lasts roughly for

- (a) 1 sec
- (b) 0.1 sec
- (c) 0.01 sec
- (d) 0.001 sec
- (e) 0.0001 sec.

Ans: d

75. Which of the following is false statement :

Excess quantities of sulphur in diesel fuel are objectionable because it may cause the following

- (a) piston ring and cylinder wear
- (b) formation of hard coating on piston skirts
- (c) oil sludge in the engine crank case
- (d) detonation
- (e) forms corrosive acids.

Ans: d

76. Which of the following is false statement. Some of the methods used to reduce diesel smoke are as follows

- (a) using additives in the fuel
- (b) engine derating i.e. reducing the maximum flow of fuel
- (c) increasing the compression ratio
- (d) adherence to proper fuel specification
- (e) avoidance of overloading.

Ans: c

77. The fuel air ratio in a petrol engine fitted with suction carburettor, operating with dirty air filter as compared to clean filter will be

- (a) higher
- (b) lower
- (c) remain unaffected
- (d) unpredictable

(e) none of the above.

Ans: a

78. Pick up the wrong statement about supercharging

- (a) supercharging reduces knocking in diesel engines
- (b) there can be limited supercharging in petrol engines because of detonation
- (c) supercharging at high altitudes is essential
- (d) supercharging results in fuel economy
- (e) supercharging is essential in aircraft engines.

Ans: d

79. The actual volume of fresh charge admitted in 4-stroke petrol engine is

- (a) equal to stroke volume
- (b) equal to stroke volume and clearance volume
- (c) less than stroke volume
- (d) more than stroke volume
- (e) more than cylinder volume.

Ans: c

80. The magneto in an automobile is basically

- (a) transformer
- (b) d.c. generator
- (c) capacitor
- (d) magnetic circuit
- (e) a.c. generator.

Ans: b

81. The reason for supercharging in any engine is to

- (a) increase efficiency
- (b) increase power
- (c) reduce weight and bulk for a given out-put
- (d) effect fuel economy
- (e) none of the above.

Ans: c

82. The operation of forcing additional air under pressure in the engine cylinder is known as

- (a) scavenging
- (b) turbulence
- (c) supercharging
- (d) pre-ignition
- (e) dissociation and carburetion of fuel.

Ans: c

83. Supercharging is essential in

- (a) diesel engines
- (b) gas turbines
- (c) petrol engines
- (d) aircraft engines
- (e) marine engines.

Ans: d

84. The minimum cranking speed in case of petrol engine is about

- (a) half the operating speed
- (b) one-fourth of operating speed
- (c) 250-300 rpm
- (d) 60-80 rpm
- (e) 10-20 rpm

Ans: d

85. In a typical medium speed 4 stroke cycle diesel engine

- (a) exhaust valve opens at 35° before bot-tom dead center and closes at 20° after top dead center
- (b) exhaust valve opens at bottom 'dead center and closes at top dead center
- (c) exhaust valve opens just after bottom dead center and closes just before top dead center
- (d) may open and close anywhere
- (e) none of the above is true.

Ans: a

86. Flash point of fuel oil is

- (a) minimum temperature to which oil is heated in order to give off inflammable vapours in sufficient quantity to ignite momentarily when brought in contact with a flame
- (b) temperature at which it solidifies or congeals
- (c) temperature at which it catches fire without external aid
- (d) indicated by 90% distillation temperature, i.e. when 90% of sample oil has distilled off
- (e) none of the above.

Ans: a

87. The mean effective pressure obtained from engine indicator indicates the

- (a) maximum pressure developed
- (b) minimum pressure
- (c) instantaneous pressure at any instant
- (d) exhaust pressure
- (e) average pressure.

Ans: e

88. For the same power developed in I.C. engines, the cheaper system is

- (a) naturally aspirated
- (b) supercharged
- (c) centrifugal pump
- (d) turbo charger
- (e) none of the above.

Ans: b

89. Installation of supercharger on a four-cycle diesel engine can result in the following percentage increase in power

- (a) upto 25%
- (b) upto 35%
- (c) upto 50%
- (d) upto 75%
- (e) upto 100%.

Ans: e

90. Scavenging is usually done to increase

- (a) thermal efficiency
- (b) speed
- (c) power output
- (d) fuel consumption
- (e) all of the above.

Ans: c

91. Which of the following is the lightest and most volatile liquid fuel

- (a) diesel
- (b) kerosene
- (c) fuel oil
- (d) gasoline
- (e) lub oil.

Ans: d

92. The theoretically correct air fuel ratio for petrol engine is of the order of

- (a) 6 : 1
- (b) 9 : 1
- (c) 12 : 1
- (d) 15 : 1
- (e) 20 : 1.

Ans: d

93. Air fuel ratio for idling speed of a petrol engine is approximately

- (a) 1 : 1
- (b) 5 : 1
- (c) 10:1
- (d) 15 : 1
- (e) 20 : 1.

Ans: c

94. Air fuel ratio at which a petrol engine can not work is

- (a) 8 : 1
- (b) 10 : 1
- (c) 15 : 1
- (d) 20 : 1 and less
- (e) will work at all ratios.

Ans: d

95. For maximum power generation, the air fuel ratio for a petrol engine for vehicles, is of the order of

- (a) 9 : 1
- (b) 12 : 1
- (c) 15 : 1
- (d) 18 : 1
- (e) 20: 1.

Ans: b

96. The following volume of air is required for consuming 1 liter of fuel by a four stroke engine

- (a) 1 m³
- (b) 5 m³
- (c) 5-6 m³
- (d) 9-10 m³
- (e) 15-18 m³.

Ans: d

97. Pour point of fuel oil is the

- (a) minimum temperature to which oil is heated in order to give off inflammable vapours in sufficient quantity to ignite momentarily when brought in contact with a flame
- (b) temperature at which it solidifies or congeals
- (c) it catches fire without external aid
- (d) indicated by 90% distillation temperature i.e., when 90% of sample oil has distilled off
- (e) temperature at which it flows easily.

Ans: b

98. A 5 BHP engine running at full load would consume diesel of the order of

- (a) 0.3 kg/hr

- (b) 1 kg/hr
- (c) 3 kg/hr
- (d) 5 kg/hr
- (e) 10 kg/hr.

Ans: b

99. Diesel engine can work on very lean air fuel ratio of the order of 30 : 1. A petrol engine can also work on such a lean ratio provided

- (a) it is properly designed
- (b) best quality fuel is used
- (c) can not work as it is impossible
- (d) flywheel size is proper
- (e) engine cooling is stopped.

Ans: c

100. A diesel engine has

- (a) 1 valve
- (b) 2 valves
- (c) 3 valves
- (d) 4 valves
- (e) no valve.

Ans: c

101. A hmh flame speed is obtained in diesel engine when air fuel ratio is

- (a) uniform throughout the mixture
- (b) chemically correct mixture
- (c) about 3-5% rich mixture
- (d) about 10% rich mixture
- (e) about 10% lean mixture.

Ans: d

102. The knock in diesel engine occurs due to

- (a) instantaneous and rapid burning of the first part of the charge
- (b) instantaneous atuo ignition of last part of charge
- (c) delayed burning of the first part of the charge
- (d) reduction of delay period
- (e) all ot the above.

Ans: a

103. The air-fuel ratio in petrol engines-is controlled by

- (a) controlling valve opening/closing
- (b) governing

- (c) injection
- (d) carburettion
- (e) scavenging and supercharging.

Ans: d

104. Volatility of diesel fuel oil is

- (a) minimum temperature to which oil is heated in order to give off inflammable vapours in sufficient quantity to ignite momentarily when brought in contact with a flame
- (b) temperature at which it solidifies or congeals
- (c) it catches fire without external aid
- (d) indicated by 90% distillation temperature, i.e., when 90% of sample oil has distilled off
- (e) temperature at which it flows easily.

Ans: d

105. Which is more viscous lub oil

- (a) SEA 30
- (b) SAE 4£
- (c) SAE 50
- (d) SAE 70
- (e) SAE 80.

Ans: e

106. In the opposed piston diesel engine, the combustion chamber is located

- (a) above the piston (/;) below the piston
- (c) between the pistons
- (d) any when
- (e) there is no such criterion.

Ans: c

107. A stoichiometric air-fuel ratio is

- (a) chemically correct mixture
- (b) lean mixture
- (c) rich mixture for idling
- (d) rich mixture for over loads
- (e) the ratio used at full rated parameters.

Ans: a

108. In a naturally aspirated diesel engine, the air is supplied by

- (a) a supercharger
- (b) a centrifugal blower
- (c) a vacuum chamber
- (d) an injection tube

(e) forced chamber

Ans: c

109. In loop scavenging, the top of the piston is

(a) flat

(b) contoured

(c) slanted

(d) depressed

(e) convex shaped.

Ans: b

110. In the crankcase method of scavenging, the air pressure is produced by

(a) supercharger

(b) centrifugal pump

(c) natural aspirator

(d) movement of engine piston

(e) reciprocating pump.

Ans: d

111. In order to prevent formation of carbon on the injector, the temperature of nozzle tip should be

(a) less than 100°C

(b) between 100-250°C

(c) between 250 - 300°C

(d) between 400 - 500°C

(e) between 500 - 1000°C.

112. The thermal efficiency of a petrol engine of two stroke with crank case scavenging as compared to four stroke petrol engine with same compression ratio will be

(a) higher

(b) lower

(c) same

(d) depends on size of engine

(e) unpredictable.

113. Ignition quality of petrol is expressed by

(a) octane number

(b) cetane number

(c) calorific value

(d) self ignition temperature

(e) distillation temperature.

114. Petrol is distilled at a temperature in range of

- (a) 30 - 65°C
- (b) 65 - 220°C
- (c) 220-350°C
- (d) 350-450°C
- (e) 450-550°C.

115. Kerosene is distilled at

- (a) 30 - 65°C
- (b) 65 - 220°C
- (c) 220 - 350°C
- (d) 350 - 450°C
- (e) 450-550°C.

116. Self-ignition temperature of petrol is of the order of

- (a) 150°C
- (b) 240°C
- (c) 370°C
- (d) 450°C
- (e) more than 500°C.

117. Iso-octane

- (a) has octane number of 0
- (b) has octane number of 50
- (c) has octane number of 100
- (d) is an index of detonation quality
- (e) is an index of knocking quality.

118. Octane number is determined by comparing the performance of the petrol with the following hydrocarbons

- (a) iso-octane
- (b) mixture of normal heptane and iso-octane
- (c) alpha methyl naphthalene
- (d) mixture of methane and ethane
- (e) mixture of paraffins and aromatics.

119. Cetane

- (a) has zero cetane number
- (b) has 100 cetane number
- (c) helps detonation
- (d) is a straight chain paraffin
- (e) determines the efficiency of an I.C. engine.

120. Ethyl fluid is used

- (a) to increase the octane rating of the fuel
- (b) to increase the cetane rating of the fuel
- (c) as a defrosting agent
- (d) as a superior type of fluid compared to others
- (e) to improve lubricating quality of fuel.

121. The self-ignition temperature of diesel oil compared to petrol is

- (a) higher
- (b) lower
- (c) same
- (d) depends on quality of fuel
- (e) unpredictable?

112. Normal heptane

- (a) accelerates auto-ignition
- (b) helps to resist auto-ignition
- (c) does not affect auto-ignition
- (d) has no relation with auto-ignition
- (e) retards auto-ignition.

123. Cetane number is determined by comparing the performance of diesel oil with the following hydrocarbons

- (a) cetane
- (b) mixture of cetane and alphas-methyl naphthalene
- (c) ethylene dibromide
- (d) mixture of aldehydes and ketones
- (e) mixture of cetane with tetra-ethyl lead

124. Which is correct statement about reaction time for autoignition of fuel and the fuel air ratio

- (a) lean mixture has high reaction time
- (b) rich mixture has high reaction time
- (c) chemically correct mixture has minimum reaction time
- (d) all of the above.
- (e) non of the above.

125. Violent sound pulsations within the cylinder of an I.C. engine are caused due to

- (a) heavy turbulence
- (b) improved scavenging
- (c) heavy supercharging
- (d) detonation
- (e) preignition.

126. Auto-ignition temperature is

- (a) minimum temperature to which oil is heated in order to give off inflammable vapours in sufficient quantity to ignite momentarily when brought in contact with a flame
- (b) temperature at which it solidifies or congeals
- (c) that at which it catches fire without external aid
- (d) indicated by 90% distillation temperature, i.e., when 90% of sample oil has distilled off
- (e) indicated by 50% distillation temperature.

127. Ignition lag is

- (a) the time taken by fuel after injection (before top dead center) to reach upto auto-ignition temperature
- (b) time before actual fuel injection and the pump plunger starts to pump fuel
- (c) time corresponding to actual injection and top dead center
- (d) time corresponding to actual ignition and top dead center
- (e) none of the above.

128. The spark plug gap is normally maintained at

- (a) 0.1 to 0.2 mm
- (b) 0.2 to 0.4 mm
- (c) 0.45 to 0.6 mm
- (d) 0.6 to 0.8 mm
- (e) 0.8 to 1 mm.

129. The function of a fuel pump in a petrol pump is to

- (a) inject fuel in cylinder
- (b) supply fuel when carburettor fails
- (c) pump fuel so that it reaches carburettor (to improve thermal efficiency)
- (d) does not exist.

130. The delay period in petrol engine is of the order of

- (a) 0.001 sec
- (b) 0.002 sec
- (c) 0.01 sec
- (d) 0.05 sec
- (e) 0.1 sec.

131. Detonation is caused by the following unstable compounds

- (a) peroxides, aldehydes and ketones
- (b) peroxides, aldehydes, oxides and sulphides
- (c) aldehydes, oxides and ketones
- (d) ketones and sulphur compounds

(e) none of the above.

13 If overhead clearance is less, then the following type of engine should be selected

- (a) V-type
- (b) In-line
- (c) Vertical
- (d) Horizontal
- (e) Radial.

133. Which is false statement about advantages of V-type engine

- (a) compact design requiring lesser space
- (b) improved distribution of air to cylinder
- (c) casting less liable to distortion
- (d) reduced torsional vibration because of shorter crankshaft
- (e) less overhead clearance.

134. The pistons are usually given a coating such as tin plating in order to

- (a) reduce weight
- (b) conduct heat efficiently
- (c) reduce possibility of scoring
- (d) reduce friction
- (e) increase lubrication effect.

135. Piston rings are usually made of

- (a) cast iron
- (b) aluminium
- (c) phosphor bronze
- (d) babbitt
- (e) carbon steel.

136. Piston rings are plated with chromium, cadmium or phosphate in order to

- (a) reduce cost
- (b) improve surface finish
- (c) prevent clogging
- (d) reduce wear and eliminate scuffing
- (e) improve heat transfer.

137. The top piston ring nearer to the piston crown is known as

- (a) compression ring
- (b) oil ring
- (c) scrapper ring
- (d) groove ring

(e) leading ring.

138. In order to prevent knock in the S.I. engines, the charge away from the spark plug should have

- (a) low temperature
- (b) low density
- (c) long ignition delay
- (d) rich mixture
- (e) all of the above.

139. Diesel engines have low specific fuel consumption compared to petrol engine. This statement is

- (a) not true
- (b) true at full load
- (c) true at part load
- (d) true at both part and full load
- (e) there could not be any such criterion.

140. To reduce the possibility of knock in the C.I. engines, the first elements of fuel and air should have

- (a) high temperature
- (b) high density
- (c) short delay
- (d) reactive mixture
- (e) all of the above.

141. The detonation tendency in petrol engines for specified conditions of fuel rating, compression ratio, speed etc. can be controlled by having

- (a) smaller cylinder bore
- (b) bigger cylinder bore
- (c) medium cylinder bore
- (d) cylinder bore could be anything as it does not control detonation
- (e) proper stroke length.

142. According to Ricardo's theory, detonation occurs due to

- (a) instantaneous auto-ignition of last part of charge to be burnt
- (b) improper mixing of air and fuel
- (c) improper combustion
- (d) self ignition temperature has nothing to do with detonation
- (e) none of the above.

143. A fuel will detonate less if it has

- (a) higher self ignition temperature
- (b) lower self ignition temperature

- (c) proper self ignition temperature
- (d) self ignition temperature has nothing to do with detonation
- (e) none of the above.

144. The knocking in diesel engines for given fuel, will be

- (a) enhanced by increasing compression ratio
- (b) enhanced by decreasing compression ratio
- (c) unaffected by compression ratio
- (d) first enhanced by increasing compression ratio upto a limit beyond which it will be suppressed
- (e) dependent on other factors.

145. The ignition of charge by some hot surface in the engine cylinder before operation of spark plug is known as

- (a) auto ignition
- (b) preignition /
- (c) retarded ignition
- (d) accelerated ignition
- (e) detonation.

146. Injection lag is

- (a) the time taken by fuel after injection (before top dead center) to reach upto auto-ignition temperature
- (b) time before actual fuel injection and the pump plunger starts to pump fuel
- (c) time corresponding to actual injection and top dead center
- (d) time corresponding to actual ignition and top dead center
- (e) none of the above.

147. Ignition quality of diesel-fuel oil is expressed by an index called

- (a) octane number
- (b) cetane number
- (c) calorific value
- (d) carbon content
- (e) ignition temperature.

148. For best results of efficient combustion, high speed diesel engines need an approximate cetane number of

- (a) 100
- (b) 10
- (c) 50
- (d) 5
- (e) 1.

149. Calorific value of diesel oil is of the order of

- (a) 3000 kcal/kg
- (b) 5000 kcal/kg
- (c) 7500 kcal/kg
- (d) 10000 kcal/kg
- (e) 15000 kcal/kg.

150. Carbon residue in diesel oil should not be more than

- (a) 1%
- (b) 0.5%
- (c) 0.1%
- (d) 0.01%
- (e) 0.001%.

151. The most popular firing order in case of four cylinder in-line I.C. engine is

- (a) 1-2-3-4
- (b) 1-3-2-4
- (c) 1-4-2-3
- (d) 1-2-4-3
- (e) 1-3-4-

15 The compression ratio of motor cars is

- (a) 5
- (b) 1
- (c) 10
- (d) 13
- (e) 16.

153. The specific gravity of diesel oil is

- (a) 1
- (b) 0.7
- (c) 0.85
- (d) 0.5
- (e) 1.25.

154. Freezing temperature of petrol is usually

- (a) 0°C
- (b) - 10°C
- (c) 10°C
- (d) less than - 30°C
- (e) less than - 273°C.

155. The specific gravity of petrol is about

- (a) 0.65
- (b) 0.75
- (c) 0.85
- (d) 0.95
- (e) 1.1.

156. Pick up the correct statement. Detonation can be controlled by

- (a) varying compression ratio
- (b) using lean mixture
- (c) retarding the spark timing
- (d) reducing the r.p.m.
- (e) increasing inlet pressure.

157. The efficiency of I.C. engines normally is of the order of

- (a) 15-20%
- (b) 20-25%
- (c) 25-30%
- (d) 30-35%
- (e) 35-50%.

158. The firing order in a six stroke I.C. engine is

- (a) 1-3-6-5-2-4
- (b) 1-4-2-5-6-3
- (c) 1-6-2-5-4-3
- (d) 1-5-2-6-3-4
- (e) 1-5-3-4-2-6.

159. Sulphur content in diesel oil should not be more than

- (a) 10%
- (b) 5%
- (c) 1%
- (d) 0.1%
- (e) 0.01%.

160. The m.e.p. of a diesel cycle having fixed compression ratio with increase in cut-off will

- (a) increase
- (b) decrease
- (c) be unaffected
- (d) depend on other factors
- (e) unpredictable.

161. The ash content in diesel oil should not be more than

- (a) 1%
- (b) 5%
- (c) 0.1%
- (d) 0.01%
- (e) 0.001%.

162. The pour point of diesel oil must be

- (a) lower than the coldest atmospheric temperature at which oil is to be pumped
- (b) higher than above
- (c) has no such relation
- (d) more than 100°C
- (e) none of the above.

163. High carbon content in diesel oil used for diesel engine leads to

- (a) production of highly corrosive gases corroding the cylinder walls and exhaust system
- (b) excessive engine wear
- (c) damaging of both the storage tank and the engine
- (d) deposition on engine parts
- (e) none of the above.

164. Exhaust pipes of engines are covered with insulating material in order to

- (a) keep the exhaust pipes warm
- (b) reduce formation of condensate
- (c) reduce heat transfer to the engine room
- (d) increase engine efficiency
- (e) conserve heat.

165. Ignition timing of a multicylinder petrol engine can be adjusted by

- (a) rotating the crank
- (b) adjusting the spark plug gap
- (c) adjusting ignition coil position
- (d) rotating the distributor
- (e) delaying the spark by increasing capacitor in ignition circuit.

166. Fuel consumption with increase in back pressure will

- (a) increase
- (b) decrease
- (c) remain unaffected
- (d) depend on other factors
- (e) none of the above.

167. The cooling water requirement for diesel engine is of the order of

- (a) 0.2 to 1.0 liter per minute per h.p.
- (b) 1 to 3 liters per minute per h.p.
- (c) 5 to 10 liters per minute per h.p.
- (d) 10 to 20 liters per minute per h.p.
- (e) 20-30 liters per minute per h.p.

168. A 4-stroke diesel engine needs about following amount of air

- (a) 75 cc per min. per h.p.
- (b) 750 cc per min. per h.p.
- (c) 7500 cc per min. per h.p.
- (d) 75000 cc per min. per h.p.
- (e) 750000 cc per min. per h.p.

169. Leakage past the piston rings and valve seats in I.C. engines with increase in speed

- (a) increases .
- (b) decreases
- (c) remains same
- (d) unpredictable
- (e) none of the above.

170. The heat wasted in diesel engine is of the order of

- (a) 80%
- (b) 65%
- (c) 50%
- (d) 35%
- (e) 25%.

171. With increase in speed of vehicle, the back pressure will

- (a) decrease
- (b) increase
- (c) remain unaffected
- (d) depend on other factors
- (e) none of the above.

17 The function of a distributor in an automobile is to

- (a) distribute charge, equally to all the cylinders
- (b) regulate power
- (c) feed lub oil to all moving parts
- (d) time the spark
- (e) inject fuel at appropriate time.

173. The ratio of useful power; engine friction exhaust gas losses; cooling water, air and oil losses for a diesel engine is of the order of

- (a) 5:25:30:50
- (b) 25:35:5:35
- (c) 25:5:10:60
- (d) 40:30:15:15
- (e) 25:5:35:35.

174. For same power and same speed, the flywheel of a four stroke engine as compared to two-stroke I.C. engine will be

- (a) smaller
- (b) bigger
- (c) same size
- (d) dependent on other engine parameters
- (e) unpredictable.

175. Air injection in I.C. engines refers to injection of

- (a) air only
- (b) liquid fuel only
- (c) liquid fuel and air
- (d) supercharging
- (e) does not exist.

176. Solid injection in I.C. engines refers to injection of

- (a) liquid fuel only
- (b) liquid fuel and air
- (c) solid fuel
- (d) solid fuel and air
- (e) does not exist.

177. The system of lubrication used for motor cycles and scooters is by

- (a) forced lubrication system
- (b) splash lubrication
- (c) applying grease under pressure
- (d) wet sump method
- (e) mixing about 5% lub oil with petrol.

178. The m.e.p. of a petrol engine first increases as the fuel air ratio is increased and then decreases on further increase in fuel air ratio. The m.e.p. is maximum in the zone of

- (a) lean mixture
- (b) chemically correct mixture
- (c) rich mixture

- (d) unpredictable
- (e) none of the above.

179. The specific fuel consumption for a petrol engine first decreases with increase in fuel air ratio and then increases with further increase in fuel air ratio. The minimum value occurs in the range of

- (a) lean mixture
- (b) chemically correct mixture
- (c) rich mixture
- (d) unpredictable
- (e) none of the above.

180. The thermal efficiency of a two cycle engine as compared to four cycle engine is

- (a) more
- (b) less
- (c) same
- (d) more upto some load and then less
- (e) it may be less or more depending on several other factors.

181. Diesel engines as compared to petrol engines require

- (a) bigger flywheel
- (b) smaller flywheel
- (c) same size flywheel
- (d) no flywheel
- (e) flywheel whose size may be less or more depending on several other factors.

183. The tendency of a diesel engine to knock increases, if

- (a) engine speed is increased
- (b) engine H.P. is increased
- (c) octane number of fuel is increased
- (d) compression ratio is increased
- (e) engine has to move uphill.

184. The tendency of a petrol engine to knock increases by

- (a) supercharging
- (b) scavenging
- (c) increasing engine H.P.,
- (d) reducing the spark advance
- (e) increasing cetane number of fuel.

185. Free acids in diesel oil for diesel engine lead to

- (a) production of highly corrosive gases corroding the cylinder walls and exhaust system
- (b) excessive engine wear

- (c) damaging of both the storage tank and the engine
- (d) deposition on engine parts
- (e) excessive fuel consumption.

186. Thermal efficiency of high speed diesel engine at design load may be of the order of

- (a) 20%
- (b) 35%
- (c) 50%
- (d) 70%
- (e) 85%.

187. The thermostat in I.C. engines permitting hot water to go to radiator is set around

- (a) 70-80°C
- (b) 80-85°C
- (c) 85-95°C
- (d) above 100°C
- (e) above 120°C.

188. The brake mean effective pressure of an I.C. engine with increase in speed will

- (a) increase
- (b) decrease
- (c) remain unaffected.
- (d) fluctuate according to engine speed
- (e) unpredictable.

189. High ash and sediment in diesel oil used in diesel engine lead to

- (a) production of highly corrosive gases corroding the cylinder walls and ex-haust system
- (b) excessive engine wear
- (c) damaging of both the storage tank and the engine
- (d) deposition on engine parts
- (e) blocking of exhaust pipes.

190. Mixing of fuel and air in case of dies engine occurs in

- (a) injection pump
- (b) injector
- (c) inlet manifold
- (d) carburettor
- (e) engine cylinder.

191. The advantage of reversing the flow of a in an air cleaner is to

- (a) increase velocity of air
- (b) increase air flow

- (c) reduce the velocity of air
- (d) throw out a large percentage of foreign matter
- (e) cool the air.

19 The most effective air cleaner in case diesel engines is

- (a) dry type
- (b) wet type
- (c) whirl type
- (d) oil bath type
- (e) all are equally good.

193. Fins are provided over engine cylinder scooters for

- (a) higher strength of cylinder
- (b) better cooling
- (c) good appearance
- (d) higher efficiency
- (e) easier handling and ease in manufacturing.

194. The elements of most concern in regard pollution caused by engines are

- (a) CO and CO₂
- (b) CO and hydrocarbons
- (c) CO₂ and hydrocarbons
- (d) carbon and dust
- (e) hot products of combustion

195. The preferred location of an oil cooler is

- (a) before the filters
- (b) after the filters
- (c) between the filters
- (d) before and after the filters
- (e) any where.

196. The petrol from tank to the automotive engine is fed by

- (a) gravity
- (b) pump run by engine
- (c) suction pressure created by, suction stroke
- (d) capillary action
- (e) fuel pump.

197. In petrol engine, increase of cooling water temperature will

- (a) increase the knocking tendency
- (b) decrease the knocking tendency

- (c) not affect the knocking tendency
- (d) increase or decrease knocking tendency depending on strength and time of spark
- (e) unpredictable.

207. In carburetors, the top of the fuel jet with reference to the level in the float chamber is kept at

- (a) same level
- (b) slightly higher level
- (c) slightly lower level
- (d) may be anywhere
- (e) varies from situation to situation.

208. Carburetion is done to

- (a) feed petrol into cylinder
- (b) govern the engine
- (c) break up and mix the petrol with air
- (d) heat up the charge to cylinder
- (e) scavenge the cylinder.

209. Power impulses from an I.C. engine are smoothed out by

- (a) governor
- (b) crank shaft
- (c) gear box
- (d) flywheel
- (e) timing spark properly.

210. The theoretically correct mixture of air and petrol is approximately

- (a) 8 : 1
- (b) 12 : 1
- (c) 15 : 1
- (d) 20 : 1
- (e) 24 : 1.

211. For low speed operation or for idling in petrol engines, the engine requirements are for

- (a) lean mixture
- (b) theoretically correct mixture
- (c) rich mixture
- (d) any type of mixture
- (e) lean/rich mixture depending upon capacity of engine.

21 In petrol engines, advancing the spark timing will

- (a) increase the knocking tendency
- (b) decrease the knocking tendency

- (c) not affect the knocking tendency
- (d) increase or decrease knocking tendency depending on strength and time of spark
- (e) unpredictable.

213. The following type of carburettor is preferred

- (a) concentric type
- (b) eccentric type
- (c) horizontal type
- (d) vertical type
- (e) none of the above.

214. In the passenger cars, the following type of carburettor is preferred

- (a) horizontal type
- (b) downward draught type
- (c) upward draught type
- (d) inclined draught type
- (e) any one of the above types.

215. The essential equipment for producing high voltage for sparking in petrol engines with battery is

- (a) ignition coil
- (b) ignition coil and distributor
- (c) ignition coil and condenser
- (d) ignition coil and contact breaker
- (e) ignition coil, contact breaker and condenser.

216. The ignition coil in diesel engines produces voltage of the order of

- (a) 6 to 12 volts
- (b) 240 volts
- (c) 1000 volts
- (d) 20,000 volts
- (e) 80,000 volts.

217. If the door of a diesel engine crankcase is opened just after shutdown before cooling of engine, then

- (a) efficiency of engine will be poor
- (b) there is a risk of explosion taking place
- (c) it is the safest practice
- (d) some parts may be subjected
- (e) some lubricating oil may be wasted.

218. The thermal efficiency of a diesel engine is of the order of

- (a) 92%

- (b) 68%
- (c) 52%
- (d) 34%
- (e) 25%.

219. The thermal efficiency of a gas engine is of the order of

- (a) 92%
- (b) 68%
- (c) 52%
- (d) 34%
- (e) 25%.

220. Theoretically, the following engine should have maximum efficiency

- (a) gas engine
- (b) 2-stroke S.I. engine
- (c) 4-stroke S.I. engine
- (d) steam engine
- (e) 4-stroke C.I. engine.

221. In petrol engine using a fixed octane rating fuel and fixed compression ratio, super charging will

- (a) increase the knocking tendency
- (b) decrease the knocking tendency
- (c) not affect the knocking tendency
- (d) increase or decrease knocking tendency depending on strength and time of spark
- (e) unpredictable.

223. High sulphur content in diesel oil used for diesel engines leads to

- (a) production of highly corrosive gases corroding the cylinder walls and exhaust system
- (b) excessive engine wear
- (c) damaging of both the storage tank and the engine
- (d) deposition on engine parts
- (e) reduction in thermal efficiency.

224. In open combustion chamber in diesel engines

- (a) the shape and layout of the piston crown, the inlet port, and the valve produce the turbulent effect on fuel mixture
- (b) fuel is injected into an auxiliary chamber that is separated from the cylinder by an orifice or throat
- (c) only a part of air charge is contained in an auxiliary chamber in which the fuel starts to burn with insufficient air which due to explosion tendency mixes thoroughly into main cylinder charge
- (d) fuel is injected at atmospheric pressure
- (e) there are no valves.

225. The basic requirement of a good combustion chamber is

- (a) high compression ratio
- (b) low compression ratio
- (c) low volumetric efficiency
- (d) minimum turbulence
- (e) high power output and high thermal efficiency.

226. Deposition of carbon in petrol engine cylinder would result in increase of

- (a) clearance volume
- (b) swept volume
- (c) compression ratio
- (d) volumetric efficiency
- (e) mean effective pressure.

227. Which of the following engines can work on very lean mixture

- (a) S.I. engine
- (b) C.I. engine
- (c) two stroke engine
- (d) four stroke engine
- (e) all of the above.

228. If petrol is used in a diesel engine, then

- (a) higher knocking will occur
- (b) efficiency will be low
- (c) low power will be produced
- (d) black smoke will be produced
- (e) lot of fuel will remain unburnt.

229. Hot air standard diesel cycle efficiency with increase in value of C_r ,

- (a) increases
- (b) decreases
- (c) remains unaffected
- (d) depends on other factors
- (e) unpredictable.

230. In turbulence chamber in diesel engine

- (a) the shape and layout of the piston crown, the inlet port, and the valve produce the turbulent effect of fuel mixture
- (b) fuel is injected into an auxiliary chamber that is separated from the cylinder by an orifice or throat
- (c) only a part of air charge is contained in an auxiliary chamber in which the fuel starts to burn with insufficient air which due to explosion tendency mixes thoroughly into main cylinder charge
- (d) there are no valves

(e) fuel is partly burnt by spark.

231. For low load operation, more suitable (economical) engine is

- (a) S.I. engine
- (b) C.I. engine
- (c) both are equally good
- (d) multicylinder engine
- (e) two stroke engine.

232. A two stroke crank compressed engine has following ports in the cylinder

- (a) suction port and exhaust port
- (b) transfer port only
- (c) suction port and transfer port
- (d) transfer port and exhaust port
- (e) suction port, exhaust port and transfer port.

233. For the same size and weight, a two stroke engine as compared to four stroke engine will generate power

- (a) about twice
- (b) about 0.5 times
- (c) nearly equal
- (d) about 1.7 times
- (e) about 5 times.

234. A two stroke engine is usually identified by

- (a) size of flywheel
- (b) weight of engine
- (c) type of lubrication system
- (d) absence of valves
- (e) location of fuel tank.

235. If diesel is fed by mistake in the oil tank of a petrol engine, then engine will

- (a) give lot of smoke
- (b) detonate
- (c) knock
- (d) not run
- (e) run for some time and then stop.

236. The thermal efficiency of a semi-diesel cycle having fixed compression ratio and fixed quantity of heat, with increase in pressure ratio will

- (a) increase
- (b) decrease

- (c) remain unaffected
- (d) increase/decrease depending upon engine capacity
- (e) first increase and then decrease.

245. The thermal efficiency of a petrol engine at design load is around

- (a) 90%
- (b) 50%
- (c) 40%
- (d) 30%
- (e) 15%.

246. In isochronous governing, speed droop is

- (a) 100%
- (b) 50%
- (c) 5%
- (d) 30%
- (e) 1%.

247. Method of governing used in petrol engine is

- (a) quantity governing
- (b) quality governing
- (c) combined governing
- (d) partial governing
- (e) hit and miss governing.

248. Pick up false statement

- (a) For petrol and large gas engines, quantity governing is preferred
- (b) In quantity governing, air fuel ratio is almost constant and quantity of charge is changed depending on load
- (c) In hit and miss governing, fuel supply is completely cut off during one or more number of cycles
- (d) In quality governing, quantity of fuel is varied to suit the load and total charge of air is varied
- (e) For close regulation of speed, combination of both quality and quantity governing is used.

249. Method of governing used in diesel engine is

- (a) quantity governing
- (b) quality governing
- (c) combined governing
- (d) partial governing
- (e) hit and miss governing.

250. An engine has a normal speed of 960 r.p.m. and no load speed of 1000 r.p.m. The speed droop of governor will be about

- (a) 2%
- (b) 4%
- (c) 8%
- (d) $\pm 4\%$
- (e) 1%.

