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PROVISIONAL ANSWER KEY

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THE LINK FOR ONLINE OBJECTION SYSTEM WILL START FROM 07-07-2026; 11:00 AM ONWARDS

Instructions / સૂચન

Candidate must ensure compliance to the instructions mentioned below, else objections shall not be considered: -

- (1) Candidates have to pay fees of Rs.100/- for each objection. The fees can be paid from the link given herewith.
- (2) The Candidate will be able to submit objection only after payment of the fees. The generation of the receipt will only be considered as final submission.
- (3) The Candidate must retain the receipt of the payment of the fees. The fees, once paid, will not be refunded under any circumstances.
- (4) All the objections should be submitted through **ONLINE OBJECTION SUBMISSION SYSTEM** only. Physical or submission through any other means will not be considered.
- (5) All objections are to be submitted with reference to the Master Question Paper published with provisional answer key, published herewith on the website / online objection submission system. Objections should be sent referring to the Question No. & options of the Master Question Paper. Objections regarding question nos. and options other than provisional answer key (Master Question Paper) shall not be considered.
- (6) Objections and answers suggested by the candidate should be in compliance with the responses given by him in his answer sheet. Objections shall not be considered, in case, if responses given in the answer sheet /response sheet and submitted objections are differed.
- (7) Supportive document to the objection must be uploaded, without which objection will not be considered.
- (8) Objections must be supported by authentic references or documentary evidence. Objections based solely on AI, GPT, or similar tools without supporting evidence shall not be considered. For calculation-based, mathematical, statistical, or reasoning questions, candidates shall provide the relevant calculation, methodology, or logical basis in support of the objection.

ઉમેદવારે નીચેની સૂચનાઓનું પાલન કરવાની તકેદારી રાખવી, અન્યથા વાંધા-સૂચન અંગે કરેલ રજૂઆતો ધ્યાને લેવાશે નહીં

- (1) ઉમેદવારે દરેક વાંધા દીઠ રૂપિયા ૧૦૦/- ફી ભરવાની રહેશે. જે ફી આ સાથે આપેલ લીંક ઉપરથી ભરી શકાશે.
- (2) ફી ભર્યા બાદ જ વાંધો સબમીટ થઈ શકશે. ફી ભર્યાની આખરી પહોંચ જ આખરી સબમીશન ગણાશે.
- (3) ફી ભર્યાની પહોંચ ઉમેદવારે સાચવી રાખવાની રહેશે. એક વાર ભરેલ ફી કોઈ પણ પરિસ્થિતિમાં પરત આપવામાં આવશે નહિ.
- (4) વાંધા ફક્ત **ઓનલાઈન ઓબ્જેક્શન સબમીશન સીસ્ટમ** દ્વારા જ સબમીટ કરવાના રહેશે. રૂબરૂ, ટપાલ અથવા ઈ-મેઈલ કે અન્ય કોઈ રીતે આયોગને મોકલવામાં આવેલ વાંધા ધ્યાને લેવામાં આવશે નહીં, જેની ખાસ નોંધ લેવી.

- (5) ઉમેદવારે પોતાને પરીક્ષામાં મળેલ પ્રશ્નપુસ્તિકામાં છપાયેલ પ્રશ્નક્રમાંક મુજબ વાંધા-સૂચનો રજૂ ન કરતાં, તમામ વાંધા-સૂચનો વેબસાઈટ પર પ્રસિધ્ધ થયેલ પ્રોવિઝનલ આન્સર કી(માસ્ટર પ્રશ્નપત્ર) ના પ્રશ્નક્રમાંક મુજબ અને તે સંદર્ભમાં રજૂ કરવા. માસ્ટર પ્રશ્નપત્રમાં નિર્દિષ્ટ પ્રશ્ન અને વિકલ્પ સિવાયના વાંધા ધ્યાને લેવામાં આવશે નહીં.
- (6) ઉમેદવારે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદવારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદવારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદવારે રજૂ કરેલ વાંધા ધ્યાને લેવાશે નહીં.
- (7) વાંધા માટે સંદર્ભ જોડવો આવશ્યક છે, જેના વિના વાંધો ધ્યાને લેવામાં આવશે નહીં.
- (8) વાંધો પ્રમાણભૂત અને અધિકૃત સંદર્ભો અથવા દસ્તાવેજી પુરાવાથી સમર્થિત હોવો આવશ્યક છે. માત્ર AI, GPT અથવા સમાન સાધનો દ્વારા જનરેટ કરાયેલ અને આધારભૂત પુરાવા વિનાના વાંધાઓની વિચારણા કરવામાં આવશે નહીં. ગણતરી આધારિત, ગાણિતિક, આંકડાશાસ્ત્રીય અથવા તાર્કિક પ્રશ્નોના કિસ્સામાં ઉમેદવારે સંબંધિત ગણતરી, પદ્ધતિ અથવા તાર્કિક આધાર રજૂ કરવાનો રહેશે.

Website link for online objection submission system: https://www.formonline.co.in/GPSC_TRACK/SearchPage.aspx

1. The compression ratio for practically diesel engine lies usually in the range of
 - (a) 3-5
 - (b) 6-8
 - (c) 10-15
 - (d) 16-22
2. The radiator tubes are manufactured from
 - (a) cast iron
 - (b) aluminium
 - (c) brass
 - (d) Steel
3. Which of the following is not the effect of detonation?
 - (a) High operating temperature
 - (b) Loss in efficiency and power output
 - (c) Loud and pulsating noise
 - (d) High local stresses
4. The brake shoes are curved to conform to the inner diameter of the
 - (a) Tyre
 - (b) Wheel
 - (c) Pedal
 - (d) Brake drum
5. The material used for the piston of the modern cars is
 - (a) Brass
 - (b) Cast Iron
 - (c) Aluminium alloy
 - (d) Steel
6. IHP minus FHP is equal to
 - (a) BHP
 - (b) SAF HP
 - (c) M.E.P
 - (d) None of the above

7. In a petrol engine the tendency for knocking decreases with
- (a) increase in charge temperature
 - (b) increase in cylinder size
 - (c) increase in compression ratio
 - ☒ (d) increase in delay period
8. Morse test can be used on
- (a) low horsepower engines only
 - (b) variable speed engines only
 - ☒ (c) Multi-cylinder engines only
 - (d) water cooled engines only
9. The piston rod of a steam engine is usually connected to the cross head by means of
- (a) bolted joint
 - (b) riveted joint
 - (c) universal joint
 - ☒ (d) cotter joint
10. The condition of correct gearing is
- (a) pitch line velocities of teeth be same
 - (b) radius of curvature of two profiles be same
 - ☒ (c) common normal to the pitch surface cuts the line of centres at a fixed point
 - (d) none of the above
11. Which of the following powder production methods produces spongy and Porus particles
- (a) Atomization
 - (b) Electrolytic Deposition
 - ☒ (c) Reduction of metal oxides
 - (d) Pulverization
12. The firing order in an internal combustion engine is the

- (a) order in which cylinders are numbered
- (b) order in which cylinders are placed
- (c) direction of rotation of crank shaft
- ☒ (d) sequence in which the cylinders deliver power stroke

13. Which of the following is a South Korean carmaker?

- (a) Mazda
- ☒ (b) Kia
- (c) Dodge
- (d) Opel

14. What is a Double Wishbone in automobiles?

- (a) Brake
- (b) Engine
- (c) Tyre
- ☒ (d) Suspension

15. Which following is NOT a part of the engine assembly?

- (a) Intake Valve
- (b) Crank Shaft
- (c) Piston
- ☒ (d) Propeller Shaft

16. Which of the following is a component that belongs to the engine assembly?

- (a) Propeller Shaft
- ☒ (b) Crankshaft
- (c) Drive Shaft
- (d) Axle

17. What is the parent company's name that owns the brands Pontiac, Buick, Cadillac, and Vauxhall?

- ☒ (a) General Motors
- (b) Ford
- (c) Fiat
- (d) Toyota

18. Which car maker developed the first modern three-point seat belt?
- ☒ (a) Volvo
 - (b) Skoda
 - (c) SEAT
 - (d) Honda
19. Detrimental property of a material for shock load applications is
- (a) High density
 - ☒ (b) Low toughness
 - (c) High strength
 - (d) Low hardness
20. Which company owns these brands: Bentley, Bugatti, Lamborghini & Audi?
- (a) Mercedes-Benz
 - ☒ (b) Volkswagen
 - (c) Audi
 - (d) BMW
21. Which Japanese automaker has a luxury vehicle division called Lexus?
- (a) Nissan
 - (b) Honda
 - (c) Mazda
 - ☒ (d) Toyota
22. The purpose of glow plug inside the combustion chamber is to
- (a) control idle engine speed
 - (b) provide light inside the combustion chamber
 - ☒ (c) add heat to the pre-combustion chamber
 - (d) warm the fuel
23. A radiator like object is an example of
- ☒ (a) heat exchanger
 - (b) defrosting device
 - (c) expansion valve
 - (d) heat pump

24. In petrol engines the sparking increases
- (a) pressure
 - (b) volume
 - ☒ (c) temperature of the product of combustion
 - (d) both (a) and (b)
25. Air standard efficiency of an I.C. engine depends on
- (a) speed
 - ☒ (b) compression ratio
 - (c) fuel
 - (d) all of the above
26. Aluminium alloys for engine/automobile parts are reinforced to increase their
- (a) Strength
 - ☒ (b) Wear resistance
 - (c) Elastic modulus
 - (d) Density
27. Thermal conductivity is defined as the heat flow per unit time
- (a) when the temperature gradient is unity
 - (b) across the wall with no temperature
 - (c) through a unit thickness of the wall
 - ☒ (d) across unit area where the temperature gradient is unity
28. A piece of blue glass heated to a high temperature and a piece of red glass at room temperature, are taken inside a room that is dimly lit, then _____
- (a) The blue piece will look blue and red will look as usual
 - (b) Red looks brighter and blue looks ordinary blue
 - ☒ (c) Blue shines like brighter red compared to the red pieces
 - (d) Both the pieces will look equally red
29. What temperature is the dark orange colour associated with?

(a) 1475 F

(b) 1650 F

(c) 1750 F

(d) 1800 F

30. The transfer of heat between a wall and a fluid system in motion is called

(a) radiation

(b) convection

(c) conduction

(d) none of the mentioned

31. For solids and liquids, specific heat

(a) depends on the process

(b) is independent of the process

(c) may or may not depend on the process

(d) none of the mentioned

32. Most metals are good conductor of heat because of

(a) Transport of energy

(b) Free electrons and frequent collision of atoms

(c) Lattice defects

(d) Capacity to absorb energy

33. Your finger sticks to an ice tray just taken from refrigerator. Which factor have more effect on this phenomenon

(a) The inside temperature of the freezer

(b) The humidity of the air

(c) The heat capacity of your finger and the tray

(d) The thermal conductivity of the tray

34. Latent heat is taken at

(a) constant temperature

(b) constant pressure

(c) both of the mentioned

(d) none of the mentioned

35. Cork is a good insulator because
- (a) It is flexible
 - (b) It can be powdered
 - (c) Low density
 - ☒ (d) It is porous
36. A composite wall generally consists of
- (a) One homogenous layer
 - ☒ (b) Multiple heterogeneous layers
 - (c) One heterogeneous layer
 - (d) Multiple homogenous layers
37. The heat energy propagation due to conduction heat transfer will be minimum for
- (a) Lead
 - (b) Water
 - ☒ (c) Air
 - (d) Copper
38. Unit of thermal conductivity in S.I. units is
- (a) $\text{J/m } ^\circ\text{K sec}$
 - (b) $\text{W/m } ^\circ\text{K}$
 - ☒ (c) Both
 - (d) None
39. Thermal conductivity of solid metals with rise in temperature normally
- (a) increases
 - ☒ (b) decreases
 - (c) remains constant
 - (d) unpredictable.
40. Heat transfer takes place as per
- (a) zeroth law of thermodynamics
 - (b) first law of thermodynamic
 - ☒ (c) second law of the thermodynamics

(d) Kirchoff's law

41. When heat is transferred from one particle of hot body to another by actual motion of the heated particles, it is referred to as heat transfer by

(a) conduction

(b) convection

(c) radiation

(d) conduction and convection

42. Sensible heat is the heat required to

(a) change vapour into liquid

(b) change liquid into vapour

(c) increase the temperature of a liquid or vapour

(d) convert water into steam and superheat it

43. The insulation ability of an insulator with the presence of moisture would

(a) increase

(b) decrease

(c) remain unaffected

(d) may increase/decrease depending on temperature and thickness of insulation

44. The appropriate rate equation for convective heat transfer between a surface and adjacent fluid is prescribed by which law?

(a) Newton's law of cooling

(b) Kirchhoff's law

(c) Newton's first law

(d) Wein's displacement law

45. Radiation heat transfer is characterized by

(a) Movement of discrete packets of energy as electromagnetic waves

(b) Due to bulk fluid motion, there is a transport of energy

(c) There is the circulation of fluid by buoyancy effects

(d) Thermal energy transfer as vibrational energy in the lattice structure of the material

46. The non-dimensional parameter known as Stanton number is used in which of the following heat transfer?

- (a) Natural convection heat transfer
- (b) Unsteady state heat transfer
- (c) Condensation heat transfer
- ☒ (d) Forced convection heat transfer

47. The method of obtaining different mechanisms by fixing different links in a kinematic chain, is known as _____ of the mechanism.

- (a) rigidity
- (b) consistency
- ☒ (c) inversion
- (d) equilibrium

48. For a four-bar mechanism, the sum of the shortest and longest link lengths should not be greater than the sum of the remaining two link lengths." Which of the following law associated with this statement?

- ☒ (a) Grashof's law
- (b) Lenz's law
- (c) Biot-savart law
- (d) Fick's law

49. The rotary internal combustion engine is the inversion of _____.

- (a) four bar link chain
- (b) two bar reciprocating mechanism
- ☒ (c) single slider crank mechanism
- (d) rocker crank mechanism

50. A minimum number of links that can make a mechanism are:

- (a) 2
- (b) 3
- ☒ (c) 4
- (d) none of these

51. Identify lower pairs.
- (a) ball and socket
 - (b) cam and follower
 - ☒ (c) piston and cylinder
 - (d) both (1) and (2)
52. The following is an automatic clutch which is controlled by engine speed
- (a) Cone clutch
 - ☒ (b) Centrifugal clutch
 - (c) Fluid clutch
 - (d) Disc clutch
53. Law of gearing is satisfied if
- (a) two surfaces slide smoothly
 - ☒ (b) common normal at the point of contact passes through the pitch point on the line joining the centres of rotation
 - (c) number of teeth = P.C.D. / module
 - (d) addendum is greater than dedendum
54. The type of gears used to connect two non-parallel non-intersecting shafts are
- (a) spur gears
 - (b) helical gears
 - ☒ (c) spiral gears
 - (d) none of these
55. The velocity ratio of two pulleys connected by an open belt or crossed belt is
- (a) directly proportional to their diameters
 - ☒ (b) inversely proportional to their diameters
 - (c) directly proportional to the square of their diameters
 - (d) inversely proportional to the square of their diameters
56. A mechanism is an assemblage of
- (a) Two links
 - (b) Three links
 - (c) Four links or more than four links

☒ (d) all of the above

57. Perfect fluids are also known as _____.

☒ (a) Inviscid fluids

(b) Non-Newtonian fluids

(c) Newtonian fluids

(d) Viscid fluids

58. The product of density, normal velocity, and surface area is termed _____.

(a) Vorticity

(b) Mass

(c) Acceleration

☒ (d) Flux

59. The equation of continuity is based on the conservation of _____.

☒ (a) Mass

(b) Momentum

(c) Energy

(d) Equilibrium

60. For an incompressible fluid or homogeneous liquid, density is _____.

☒ (a) Constant

(b) Zero

(c) Infinity

(d) On

61. The motion of a fluid is said to be _____, if the value of the vorticity vector is zero.

(a) Steady

(b) Unsteady

☒ (c) Irrotational

(d) Rotational

62. The irrotational motion of a liquid occupying a _____ connected region has less kinetic energy than any other motion consistent with the same normal velocity of the boundary.

- ☒ (a) Simply
- (b) Doubly
- (c) Multiply
- (d) n -ply

63. Stream function is _____ along a streamline.

- (a) Zero
- ☒ (b) Constant
- (c) One
- (d) Not defined

64. The stream function and the velocity potential both satisfy _____ equation.

- (a) Bernoulli's
- ☒ (b) Laplace's
- (c) Kelvin's
- (d) Newton's

65. In two-dimensional motion, the equi-potential lines and the _____ cut orthogonally.

- ☒ (a) Streamlines
- (b) Vorticity vector
- (c) Velocity potential
- (d) Complex potential

66. The points where the _____ is zero are called stagnation points.

- (a) Streamline
- (b) Stream function
- ☒ (c) Complex velocity
- (d) Vorticity vector

67. What type of bonding makes up ceramic materials?

- (a) loose bonds
- (b) London dispersion forces
- (c) metallic bonds
- ☒ (d) ionic bonds

68. How many lattice structures exist?
- (a) 2
 - (b) 14
 - ☒ (c) 7
 - (d) 5
69. How many Bravais lattice structures exist?
- (a) 2
 - ☒ (b) 14
 - (c) 7
 - (d) 5
70. The maximum attainable stress for a metal is called:
- (a) yield stress
 - (b) fracture stress
 - (c) maximum stress
 - ☒ (d) ultimate tensile stress
71. All are attributes of ceramics, except:
- (a) covalent bonded
 - ☒ (b) low melting point
 - (c) high stiffness
 - (d) High hardness
72. What class of material might be useful at temperatures 1100°C (2150°F)?
- (a) pure metals
 - (b) polymer-polymer composites
 - ☒ (c) ceramics-ceramic composites
 - (d) lead-tin metal alloy
73. Pick the composite from the list
- ☒ (a) Wood
 - (b) Steel
 - (c) Nylon
 - (d) Mica

74. Strong and ductile materials are
- (a) Polymers
 - (b) Ceramics
 - ☒ (c) Metals
 - (d) Semiconductors
75. The most used metal in the world is
- (a) Aluminium
 - (b) Gold
 - ☒ (c) Steel
 - (d) Silver
76. Universal Testing Machine is used to measure
- (a) density
 - ☒ (b) strength
 - (c) hardness
 - (d) none
77. In double conjugate points derivation, G is the
- (a) spring center
 - ☒ (b) mass center
 - (c) pitch center
 - (d) bounce center
78. Complete the equation, $Y_\beta =$
(where C_F and C_R are the front and rear cornering stiffness coefficients)
- (a) C_R
 - (b) C_F
 - ☒ (c) $C_F + C_R$
 - (d) $C_F * C_R$
79. In Hotchkiss drive, all the loads are taken by
- (a) shackle
 - (b) shock absorber
 - ☒ (c) leaf spring

(d) axle

80. Coil Spring is having better

(a) load carrying capacity

(b) ride characteristics

(c) roll characteristics

(d) anti-pitch characteristics

81. Heat pipe is widely used now a days because it act as

(a) An insulator

(b) Conductor and insulator

(c) A superconductor

(d) A fin

82. Underbody pans are used for

(a) increasing drag

(b) reducing drag

(c) reducing lift

(d) reducing side force

83. The surface of tyre in contact with the road is called as

(a) tread

(b) contact patch

(c) wire bead

(d) side wall

84. The function of shock absorber is

(a) to absorb shock

(b) to absorb energy

(c) to damp the vibrations

(d) to absorb heat

85. Production of pure powder of iron and copper can be effectively using effectively then using

(a) atomization

(b) reduction

(c) crushing

(d) electrolysis

86. In the equation of single mass, two degrees of freedom system, the K_2 indicates

(a) whether mass will have bouncing mode

(b) coupling between two vibration modes

(c) whether mass will have pitching mode

(d) whether mass will have different modes of vibration

87. Approximately ____ % of drag arises from body profile

(a) 65

(b) 50

(c) 20

(d) 25

88. The linkages in Ackerman type has a shape of

(a) parallelogram

(b) trapezoidal

(c) rectangle

(d) square

89. The elements of passive suspension are

(a) MR Damper

(b) MR Damper and Spring

(c) Damper and Spring

(d) only spring

90. The cornering force generated by tyre is mainly due to

(a) castor angle

(b) slip angle

(c) castor angle

(d) aligning torque

91. Combined cornering and braking is mainly used to check performance of drivers

- (a) passenger car
- (b) truck driver
- (c) bus driver
- ☒ (d) racing car

92. In double conjugate points equation, K is

- (a) mass center
- (b) spring center
- ☒ (c) radius of gyration
- (d) pitch center

93. The basic steering movements are

- (a) bouncing, pitching, yawing
- (b) bouncing, pitching, rolling
- (c) bouncing, yawing rolling
- ☒ (d) yawing, pitching, rolling

94. The low inflation pressure is good when tyre is in

- (a) concrete road
- (b) mud
- ☒ (c) sand
- (d) tarr road

95. The actuators used in automobile control system are mainly

- ☒ (a) electric
- (b) electronic
- (c) hydraulic
- (d) pneumatic

96. The CTIS is related to

- (a) torque
- ☒ (b) tyre inflation pressure
- (c) speed of vehicle
- (d) steering angle

97. The steep wind shield angles causes
- ☒ (a) drag to increase
 - (b) drag to reduce
 - (c) no change in drag
 - (d) increases lift
98. When front and rear, both wheels are steered is called as
- (a) active steer
 - ☒ (b) four wheel steer
 - (c) passive steer
 - (d) wheel steer
99. The main advantage of independent suspension is
- ☒ (a) greater roll stiffness
 - (b) hard ride
 - (c) camber change
 - (d) increased load carrying capacity
100. The anti-roll bar is used with _____ suspension
- ☒ (a) passive
 - (b) self levelling
 - (c) semi active
 - (d) active
101. The size of the engine intake valve is
- (a) Same as that of exhaust valve
 - (b) Smaller than that of exhaust valve
 - ☒ (c) Larger than that of exhaust valve
 - (d) Does not depend upon the size of the exhaust valve
102. In a diesel engine a clogged nozzle could result in
- (a) Excessive fuel consumption
 - (b) Over-rich mixture
 - (c) Excessive smoke
 - ☒ (d) Any of the above.

103. Loss of engine compression can result from
- (a) Defective fan belt
 - (b) Loose valve
 - (c) Excessive tappet clearance
 - (d) Worn out rings
104. When considerable material must be removed to clean up a cylinder bore, the cylinder should be
- (a) Bored
 - (b) Honed
 - (c) Ground
 - (d) Reamed
105. The brake pipes in hydraulic brake systems are made of
- (a) Rubber
 - (b) Polyvinyl chloride
 - (c) Plastic
 - (d) Steel
106. The capacity of a battery is usually expressed in terms of
- (a) Volts
 - (b) Current in amperes
 - (c) Weight
 - (d) Ampere hours
107. For a spark plug M 14 × 1.25, the last figure 1.25 stands for
- (a) Electrode diameter in mm
 - (b) Tip width in mm
 - (c) Gap between electrodes in mm
 - (d) Pitch of plug thread.
108. The minimum cranking speed in petrol engines is
- (a) Equal to the normal operating speed
 - (b) Half of operating speed
 - (c) One-fourth of operating speed

☒ (d) 60–80 rpm

109. For lubrication of which part of an automobile only grease is

- (a) Transmission
- (b) Steering system
- (c) Axle drive
- ☒ (d) Tie rod

110. If a engine shows lack of power on running the probable cause could be

- (a) Poor compression
- (b) Faulty ignition
- (c) Overheating
- ☒ (d) Any of the above.

111. When the main operating components are attached onto the main frame, the assembly is called a

- (a) Unit
- ☒ (b) Chassis
- (c) Body shell
- (d) Sub-section.

112. The distance between the centres of the front wheel is called the

- ☒ (a) Track
- (b) Wheel base
- (c) Axle width
- (d) Turning circle.

113. Which transmission unit disengages the drive and provides a smooth take up of the drive?

- ☒ (a) Clutch
- (b) Gearbox
- (c) Final drive
- (d) Differential

114. The purpose of valve clearance is to
- (a) Allow the valve to expand
 - (b) Allow the valve to slide in the guide
 - ☒ (c) Ensure that the valve closes fully
 - (d) Ensure that the crankshaft is free to rotate.
115. The stroke of an engine is the
- (a) Volume of the cylinder
 - (b) Length of the connecting rod
 - (c) Internal diameter of the cylinder
 - ☒ (d) Distance between t.d.c. and b.d.c.
116. On modern four-stroke engines the exhaust valve opens just
- (a) Before TDC.
 - (b) After TDC.
 - ☒ (c) Before BDC.
 - (d) After BDC.
117. The reason why petrol flows from the float chamber to the venturi is because
- ☒ (a) Of the difference in pressure
 - (b) Of the difference in level
 - (c) The float lever is higher
 - (d) The air sucks out the petrol.
118. The two firing orders used on four-cylinder in-line engines are
- ☒ (a) 1-3-4-2 and 1-4-2-3
 - (b) 1-4-3-2 and 1-3-2-4
 - (c) 1-3-2-4 and 1-2-4-3
 - (d) 1-2-3-4 and 4-3-2-1.
119. What is happening below the piston of a two-stroke engine at the instant when the spark occurs?
- (a) New gas is being compressed
 - (b) Transfer port has just opened

- (c) New gas flowing in through the inlet port
- (d) Inlet port is closed and depression is being formed.

120. Water circulation in a thermo-syphon cooling system is caused by

- (a) Conduction currents
- (b) A belt driven water impeller
- (c) A gear driven water pump
- (d) The change in density of the water.

121. Modern engine uses a pump operated cooling system instead of the thermo-syphon system because the later

- (a) Could not be pressurized
- (b) Overcooled the cylinder head and valves
- (c) Required a large quantity of water
- (d) Does not allowed a thermostat to be fitted.

122. The purpose of a thermostat in an engine cooling system is to

- (a) Prevent the coolant from boiling
- (b) Allow the engine to warm up quickly
- (c) Pressurize the system to raise the boiling point
- (d) Indicate to the driver the coolant temperature.

123. The quantity of antifreeze in a cooling system is normally determined by measuring the

- (a) Relative density with a special hydrometer
- (b) Temperature at which the coolant boils
- (c) Temperature at which the coolant freeze
- (d) Pressure of the coolant at a temperature of 80°C.

124. Power output of a diesel engine is controlled by

- (a) Varying the pump timing
- (b) Varying the compression ratio
- (c) Regulating the quantity of air induced
- (d) Regulating the quantity of fuel injected.

125. One reason for richening the petrol-air mixture for cold starting is
- (a) Fuel particles are smaller
 - (b) Quantity of air is smaller
 - (c) Cold engine does not vaporize fuel**
 - (d) Cold petrol will not flow through jet.
126. The outlet of a carburettor slow running system is situated on the
- (a) Engine side of the throttle**
 - (b) Choke side of the throttle
 - (c) Waist of the venturi
 - (d) Intake side of the venturi.
127. The part of an ignition system which transforms the voltage from 12 V to more than 9000 V is the
- (a) Coil**
 - (b) Distributor
 - (c) Capacitor
 - (d) Contact breaker.
128. The purposes of the capacitor in a coil ignition system is to
- (a) Transform the voltage
 - (b) Act as a mechanical switch
 - (c) Prevent arcing at the contact breaker**
 - (d) Direct the current to the appropriate plug.
129. The gap of a spark plug is adjusted by
- (a) Filing the centre electrode
 - (b) Filing the earth electrode
 - (c) Bending the centre electrode
 - (d) Bending the earth electrode.**
130. The gears in a constant mesh gear box have teeth which are inclined to the shaft axis, this type of gear is called
- (a) Spur
 - (b) Worm

- (c) Bevel
- ☒ (d) Helical

131. A propeller shaft is tubular instead of solid because

- (a) A solid shaft is weaker
- ☒ (b) Its sag is smaller
- (c) It is more rigid
- (d) It resists 'wind up'

132. Which one of the following suspension springs also acts as a means for locating the axle?

- ☒ (a) Laminated
- (b) Helical
- (c) Torsion bar
- (d) Rubber

133. The purpose of the 'well' in a wheel rim is to

- (a) Lock the tyre onto the rim
- ☒ (b) Allow the tyre to be fitted and removed
- (c) Expose the valve of the inner tube
- (d) Prevent the tyre dislodging during severe cornering

134. Which one of the following sections offers the highest resistance to torsion?

- (a) Flat
- ☒ (b) Tubular
- (c) Channel
- (d) Box

135. Rotary motion of the steering wheel is converted to reciprocating motion by

- (a) Track arm
- (b) Track rod
- (c) Stub axle
- ☒ (d) Steering box

136. The track rod is connected to the track arm by a

- ☒ (a) Ball joint
- ☐ (b) King pin
- ☐ (c) Stub axle
- ☐ (d) Universal joint

137. Injector is not located in

- ☐ (a) Cylinder
- ☐ (b) port
- ☐ (c) manifold
- ☒ (d) Crankcase

138. Which one is not a type of muffler

- ☐ (a) Baffler type
- ☐ (b) Resonance type
- ☐ (c) Absorber type
- ☒ (d) Displacement type

139. Purpose of transmission is to provide

- ☒ (a) High torque at the time of starting
- ☐ (b) Low torque
- ☐ (c) Average torque
- ☐ (d) High speed

140. The thermal efficiency of a diesel cycle having fixed compression ratio with increase of cut-off ratio will

- ☐ (a) increase
- ☒ (b) decrease
- ☐ (c) remain unaffected
- ☐ (d) none of the above

141. Piston rings are usually made of

- ☒ (a) cast-iron
- ☐ (b) aluminium
- ☐ (c) phosphor bronze

(d) carbon steel.

142. In four-stroke engines, the camshaft connected to the crankshaft by gears or chain rotates at

- (a) half the crankshaft speed
- (b) three-fourth the crankshaft speed
- (c) double the crankshaft speed
- (d) equal to the crankshaft speed

143. The mixture requirement of a S.I. engine under normal running on road is

- (a) a stoichiometric mixture
- (b) a rich mixture
- (c) a lean mixture
- (d) none of the above

144. Auto-ignition in a S.I. engine means

- (a) automatic ignition of the charge at the end of compression
- (b) ignition induced by the passage of a spark
- (c) ignition of the charge before the passage of the flame front
- (d) ignition induced to supplement the process of normal combustion

145. Normally a lubricant is selected for an engine on the basis of

- (a) SAE viscosity rating number
- (b) Saybolt seconds
- (c) Redwood seconds
- (d) Viscosity in stokes

146. The best possible location for the spark plug is

- (a) near the inlet valve
- (b) near the exhaust valve
- (c) at the centre of the cylinder head
- (d) any place of the combustion chamber

147. Anti-knock property of C.I. engine fuel can be improved by adding

- (a) tetra-ethyl lead
- (b) trimethyl pentane

☒ (c) amyl nitrate

(d) hexadecane

148. For combustion of 1 kg of carbon, the quantity of air required by mass is

(a) 12 kg

(b) 2.67 kg

(c) 15 kg

☒ (d) 11.6 kg

149. Economiser system is provided in the carburettors

(a) to achieve economy in fuel consumption

☒ (b) to allow richer mixture for maximum power range

(c) to facilitate easy starting

(d) to accelerate the engine rapidly

150. Blue white smoke is caused in diesel engine exhaust by

(a) incomplete diesel combustion

☒ (b) liquid droplets of lubricating oil or fuel oil while starting from cold

(c) very lean air-fuel mixture

(d) very high speed operation

151. The purpose of venturi in the carburettor is to work as

(a) pump

(b) compressor

☒ (c) ejector

(d) none of these

152. The Stirling engine may be called as an

(a) internal combustion engine

☒ (b) external combustion engine

(c) combination of internal and external combustion engines

(d) none of the above

153. The ratio of brake power to indicated power of an I.C. engine is called

☒ (a) mechanical efficiency

(b) thermal efficiency

(c) volumetric efficiency

(d) relative efficiency

154. In case of S.I. engine, to have best thermal efficiency the fuel air mixture ratio should be

☒ (a) lean

(b) rich

(c) may be lean or rich

(d) chemically correct

155. Very high-speed engines are generally

(a) D.I. engines

☒ (b) S.I. engines

(c) C.I engines

(d) Steam engines

156. For diesel engines, the method of governing employed is

(a) quantity governing

☒ (b) quality governing

(c) hit and miss governing

(d) none of the above

157. Voltage developed to strike spark in the spark plug is in the range:

(a) 6 to 12 volts

(b) 1000 to 2000 volts

☒ (c) 20000 to 25000 volts

(d) none of the above

158. Normal heptane content in a fuel for S.I. engines

(a) retards auto-ignition

☒ (b) accelerates auto-ignition

(c) does not affect auto-ignition

(d) none of the above

159. Vapour lock refers to which of the following:
- (a) Excess supply of fuel to engine
 - (b) Blocking of carburettor jets
 - ☒ (c) Complete or partial stoppage of fuel supply due to vaporization of fuel in the supply line
 - (d) Supply of air-fuel mixture containing liquid particles.
160. The ignition quality of a petrol engine fuel is expressed as
- ☒ (a) Octane number
 - (b) Cetane number
 - (c) API gravity
 - (d) SAE rating
161. Which of the following fuels has a cetane number of 100?
- (a) Normal heptane
 - (b) Ethyl fluid
 - ☒ (c) Cetane
 - (d) α -methyl naphthalene
162. Stoichiometric ratio is
- (a) actual ratio of air to fuel for maximum efficiency
 - ☒ (b) chemically correct air-fuel ratio by weight
 - (c) chemically correct air-fuel ratio by volume
 - (d) none of the above
163. Which of the following factors does not promote detonation in S.I. engines?
- ☒ (a) High self-ignition temperature of fuel
 - (b) Increase in inlet pressure and temperature of charge
 - (c) Higher compression ratio
 - (d) Advanced spark timing
164. A 2-stroke cycle engine as compared to 4-stroke cycle engine
- (a) has lower fuel consumption
 - (b) can be easily started
 - ☒ (c) is smaller in size for the same output

(d) has lesser shocks and vibrations

165. What will happen if petrol is used in diesel engine?

(a) Black smoke will be produced

(b) Low power will be produced

(c) Higher knocking will occur

(d) Efficiency will be low

166. Due to which of the following reasons the petrol engines are usually not supercharged?

(a) Drop in volumetric efficiency

(b) Increased knocking

(c) Increased specific fuel consumption

(d) Power loss

167. Free piston engines find application in

(a) gas turbines

(b) mining installations

(c) compressed air supply

(d) supercharging of diesel engines.

168. What is swirl in C.I. engines?

(a) Circular motion imparted to suction air

(b) Radial motion imparted to fuel-air mixture

(c) Directional movement of fuel spray

(d) All of the above

169. In a C.I. engine squish is created

(a) towards the end of compression stroke

(b) at the end of suction stroke

(c) at the beginning of suction stroke

(d) during combustion

170. By which of the following a 2-stroke engine is usually identified?

(a) Absence of valves

(b) Size of flywheel

- (c) Location of fuel tank
- (d) Weight of engine

171. Compared to petrol engines, diesel engines require

- (a) smaller flywheel
- ☒ (b) bigger flywheel
- (c) same size flywheel
- (d) no flywheel

172. How can the ignition timing of a multicylinder petrol engine be adjusted?

- (a) By adjusting ignition coil position
- (b) By rotating the crank
- ☒ (c) By rotating the distributor
- (d) By adjusting the spark plug gap

173. A fuel will detonate less if

- (a) it has constant self-ignition temperature
- (b) it has lower self-ignition temperature
- ☒ (c) it has higher self-ignition temperature
- (d) none of the above

174. On which of the following cycles are most high-speed engines operated?

- ☒ (a) Two stroke cycle
- (b) Carnot cycle
- (c) Diesel cycle
- (d) Dual cycle

175. Aluminium alloy is usually used to make engines pistons because it

- (a) wears less
- ☒ (b) is lighter
- (c) is stronger
- (d) absorbs shocks

176. By which of the following methods are automobile connecting rods mass produced?

- (a) Die casting
- ☒ (b) Forging
- (c) Cold heading
- (d) Fine sand casting

177. Due to which of the following reasons automobile engines are usually designed as multicylinder engines?

- (a) High efficiency
- (b) Lower fuel consumption
- ☒ (c) Better balance, uniform torque output
- (d) None of the above

178. The drive from the gear box to the rear axle is taken by

- (a) clutch
- (b) universal joint
- ☒ (c) propeller shaft
- (d) differential gear

179. Where is the Hook's joint used in an automobile car?

- ☒ (a) Between gear box and propeller shaft
- (b) Between flywheel and clutch
- (c) Between differential gear and wheels
- (d) Between clutch and gear box

180. What is wheel base of a vehicle?

- (a) It is width of tyres
- (b) It is the distance between front tyres
- ☒ (c) It is the distance between front and rear axles
- (d) It is the extreme length of the vehicle

181. What is the efficiency of mechanical brakes?

- (a) 25-35 percent
- ☒ (b) 60-70 percent
- (c) 90-95 percent
- (d) 100 percent

182. On which of the following brake lining is mounted?

- (a) Master cylinder
- (b) Wheel cylinder
- ☒ (c) Brake shoe
- (d) Brake drum

183. Automobile gears are generally made of

- (a) cast iron
- (b) stainless steel
- ☒ (c) alloy steel
- (d) mild steel

184. Dynamo in automobile is a

- ☒ (a) shunt generator
- (b) series generator
- (c) either of the above
- (d) none of the above

185. A temperature indicator provided for automobiles indicates temperature of

- (a) engine piston
- (b) engine cylinder walls
- (c) air surrounding radiator
- ☒ (d) jacket cooling water

186. Which type of springs is widely used for suspension in light and heavy commercial vehicles

- ☒ (a) Semi-elliptic leaf spring
- (b) Tapered leaf spring
- (c) Coil spring
- (d) None of the above

187. The front wheel drive as compared to rear wheel drive

- (a) requires longer propeller shaft
- ☒ (b) gives better riding performance
- (c) has a greater skidding tendency

(d) provides increased tractive effort when going up steep gradient

188. A shackle with a leaf spring

(a) prevents squeaking sound

(b) allows the spring length to change

(c) provides good traction

(d) allows pivoting of spring end.

189. What is the disadvantage of the radial ply tyre as compared to cross ply tyre?

(a) Uneven braking

(b) Higher cornering power

(c) Lower rolling resistance

(d) Uncomfortable ride at low speeds

190. A Turbo charger is driven by the _____ energy of engine.

(a) electrical

(b) exhaust

(c) fluid

(d) none

191. Who is often credited with inventing the first practical automobile powered by an internal combustion engine?

(a) Karl Benz

(b) Henry Ford

(c) Nikola Tesla

(d) Thomas Edison

192. India adopted the Bharat Stage (BS) emission standards to regulate vehicle emissions. What is the current BS emission standard in India (as of my last knowledge update in September 2021)?

(a) BS4

(b) BS5

(c) BS6

(d) BS7

193. Which Indian automotive company is known for its three wheeled vehicles, including the "Tuk Tuk"

- (a) TVS Motor Company
- (b) Bajaj Auto**
- (c) Hero MotoCorp
- (d) Mahindra & Mahindra

194. The internal energy of monatomic and diatomic gases are respectively due to

- (a) linear motion and rolling motion
- (b) rolling motion and linear motion
- (c) linear motion and rotatory motion**
- (d) rotatory motion and linear motion

195. $dU = -dW$ is true for

- (a) isothermal process
- (b) adiabatic process**
- (c) isobaric process
- (d) isochoric process

196. Hobbing process is also used for which of the following application?

- (a) punching
- (b) metal bending
- (c) rust removal
- (d) sprocket cutting**

197. A single point thread cutting tool should ideally have

- (a) zero rake angle
- (b) positive rake angle**
- (c) negative rake angle
- (d) point angle

198. Drilling is an example of

- (a) oblique cutting**
- (b) orthogonal cutting

- (c) side cutting
- (d) uniform cutting

199. Aerodynamic forces are generated due to _____

- ☒ (a) shear and pressure force acting on body
- (b) shear effects only
- (c) only pressure forces
- (d) twisting of beam

200. Drag which is produced due to lift is called?

- ☒ (a) Induced drag
- (b) Parasite drag
- (c) Weight
- (d) Thrust drag