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Question Booklet Alpha Code

A

	Question Booklet Sl. No.
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A

Total Number of Questions : 100

Time : 75 Minutes

Maximum Marks : 100

INSTRUCTIONS TO CANDIDATES

1. The Question Paper will be given in the form of a Question Booklet. There will be four versions of Question Booklets with Question Booklet Alpha Code viz. **A, B, C & D**.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the Question Booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a Question Booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator **IMMEDIATELY**.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your Question Booklet is un-numbered, please get it replaced by new Question Booklet with same alpha code.
6. The Question Booklet will be sealed at the middle of the right margin. Candidate should not open the Question Booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the Question Booklet supplied to him/her contains all the 100 questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the Question Booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.



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1. Newton is the SI unit of
A) Pressure
B) Force
C) Energy
D) Velocity
2. The product of force and perpendicular distance from axis of rotation is known as
A) Load arm
B) Effort arm
C) Moment
D) Inertia
3. Which of the following is a Scalar quantity ?
A) Speed
B) Force
C) Velocity
D) Momentum
4. Which of the following is an example for Third order lever ?
A) Wheel barrow
B) Scissors
C) Lemon squeezer
D) Tweezers
5. The ratio of shear stress to shear strain is known as
A) Bulk modulus
B) Young's modulus
C) Rigidity modulus
D) Torsion
6. The rate of doing work is known as
A) Energy
B) Power
C) Work done
D) Force
7. Water in an overhead tank possesses
A) Kinetic energy
B) Potential energy
C) Strain energy
D) All of the above
8. The ratio of lateral strain to linear strain is known as
A) Poisson's ratio
B) Torque
C) Moment of inertia
D) Bulk Modulus
9. Which of the following is the unit of power ?
A) J/Sec
B) Watt
C) Horse power
D) All of the above
10. In which of the following lever, fulcrum is in between load and effort ?
A) First order
B) Second order
C) Third order
D) All of the above

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11. Momentum is the product of mass and
A) Force
B) Acceleration
C) Velocity
D) Stress
12. Which of the following has no unit ?
A) Stress
B) Strain
C) Mass
D) Moment
13. The ratio of frictional force to normal reaction is known as
A) Coefficient of friction
B) Angle of friction
C) Moment of inertia
D) Mechanical advantage
14. The ratio of Ultimate stress to working stress is known as
A) Poisson's ratio
B) Factor of safety
C) Young's modulus
D) Breaking load
15. According to which law "Within elastic limit stress is directly proportional to strain" ?
A) Newton's law
B) Joules law
C) Hooke's law
D) Charles law
16. When a tensile force applied on a body of length 'L', Area of cross-section 'A' and Young's modulus 'E'. Then change in length, $l =$
A) $PL \times AE$
B) PL/AE
C) PLE/A
D) AE/PL
17. What is the kinetic energy of a body of mass 50 kg moving with a velocity 80 m/s ?
A) 320 KJ
B) 128 KJ
C) 160 KJ
D) 160 J
18. Which of the following have same SI unit ?
A) Velocity and Force
B) Mass and Density
C) Energy and Power
D) Energy and Work done
19. A spherical ball which is at rest on a horizontal flat surface is an example for
A) Stable equilibrium
B) Unstable equilibrium
C) Neutral equilibrium
D) All of the above

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20. Friction can be reduced by
- A) Smoothing of contacting surfaces
 - B) Applying lubricant in between contact surfaces
 - C) Introducing material of low coefficient of friction
 - D) All of the above
21. In a machine drawing hatching lines are generally drawn at an angle
- A) 35°
 - B) 45°
 - C) 55°
 - D) 65°
22. In Triple start thread, Lead =
- A) $\frac{1}{3} \times \text{Pitch}$
 - B) $3 \times \text{Pitch}$
 - C) Pitch
 - D) $2 \times \text{Pitch}$
23. Diameter of Rivet means
- A) Shank diameter
 - B) Head diameter
 - C) Tail diameter
 - D) All of the above
24. A welded joint is an example for
- A) Temporary joint
 - B) Permanent joint
 - C) Semi-permanent joint
 - D) Screwed joint
25. Which of the following is an example for Anti friction bearing ?
- A) Bush bearing
 - B) Foot step bearing
 - C) Ball bearing
 - D) All of the above
26. The component which is a metallic piece of wedge inserted between a shaft and hub, parallel to the axis of shaft is known as
- A) Key
 - B) Coupling
 - C) Bush
 - D) Rivet

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27. The difference between upper limit of size and lower limit of size is known as
A) Basic size
B) Tolerance
C) Actual size
D) Clearance
28. The angle of Acme thread is
A) 60°
B) 45°
C) 55°
D) 29°
29. In a riveted joint if "d" is the diameter of rivet and "t" is the thickness of plate. Then according to Unwins formula $d =$
A) $3t$
B) $6\sqrt{t}$
C) $6\sqrt{t}$
D) t
30. Which of the following key is in the form of a segment of a circular disc ?
A) Gib head key
B) Woodruff key
C) Taper key
D) All of the above
31. Which of the following component is used to connect shafts ?
A) Bearing
B) Coupling
C) Pulley
D) Rivet
32. A Bolt is designated as M12. This means
A) Length 12 mm
B) Minor diameter 12 mm
C) Major diameter 12 mm
D) Pitch 12 mm
33. In a riveted joint, the distance between two adjacent rivets in the same row measured in the gauge line is known as
A) Transverse pitch
B) Diagonal pitch
C) Marginal distance
D) Longitudinal pitch
34. Which of the following component has threads on both ends ?
A) Stud
B) Bolt
C) Key
D) Rivet
35. Which of the following is a type of Rivet head ?
A) Snap head
B) Pan head
C) Countersunk head
D) All of the above

A

36. The steam engine comes under the category of
- A) Internal combustion engine
 - B) External combustion engine
 - C) Turbine
 - D) Compressor
37. In an Otto engine, the combustion occur at
- A) Constant pressure
 - B) Constant temperature
 - C) Constant volume
 - D) Constant heat
38. In a four stroke IC engine, the number of stroke covered for one revolution of crank shaft is
- A) 4
 - B) 2
 - C) 1
 - D) 0.5
39. The hand priming pump is used in an engine, when the engine is
- A) at idling speed
 - B) at full load
 - C) at full speed
 - D) at rest
40. If the thermostat valve is stuck in closed position, what will be the result ?
- A) Engine gets over heat
 - B) Engine gets over cooled
 - C) Engine does not start
 - D) Engine does not stop
41. What is the instrument used to check the valve tappet clearance of IC engine ?
- A) Pitch gauge
 - B) Feeler gauge
 - C) Radius gauge
 - D) All of the above
42. What is the purpose of dip stick used in an engine ?
- A) To check the oil density
 - B) To check the oil temperature
 - C) To check the oil pressure
 - D) To check the oil level

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43. What is the equation for Frictional Horse Power (FHP) ?
A) $IHP - BHP$
B) $IHP + BHP$
C) IHP/BHP
D) $IHP \times BHP$
44. Which of the following quality determine burning property of diesel fuel ?
A) Viscosity
B) Volume
C) Octane number
D) Cetane number
45. The clearance volume is 10 cc and the swept volume is 90 cc, what is the compression ratio ?
A) 8 : 1
B) 9 : 1
C) 10 : 1
D) 11 : 1
46. Ignition advance is expressed in terms of
A) Crank angle
B) Millimetres of piston travel before TDC
C) Time in milli seconds
D) All of the above
47. The escape of burnt gases from the combustion chamber past of the piston into the crankcase is called
A) Gas loss
B) Blow by
C) Bypass
D) Passed gas
48. In two stroke engine, what replaces the valves of the four stroke engine ?
A) Fines
B) Ports
C) Notches
D) Tubes
49. The fuel is injected into the cylinder in diesel engine, when the piston is
A) Exactly at TDC after compression stroke
B) Exactly at BDC before compression stroke
C) Approaching to TDC during compression stroke
D) Approaching to TDC during exhaust stroke
50. A square type engine
A) has geometrically square shape
B) has two vertical and horizontal cylinders
C) has square cylinders
D) has cylinder bore equal to stroke length

A

51. The maximum velocity in a circular pipe when the flow is laminar occurs at
- A) the top of the pipe
 - B) the bottom of the pipe
 - C) the center of the pipe
 - D) same in all direction
52. Due to which of the following phenomena water hammer is caused ?
- A) Sudden closure of valve in a pipe line
 - B) Sudden opening of valve in a pipe line
 - C) In-compressibility of fluid
 - D) The material of the pipe line
53. The venturimeter is used for measuring
- A) Pressure
 - B) Flow rate
 - C) Total energy
 - D) Total head
54. The phenomenon by which a liquid rises into a thin glass tube above or below its normal level
- A) Capillarity
 - B) Surface Tension
 - C) Cohesion
 - D) Adhesion
55. The viscosity of a liquid _____ with increase in temperature.
- A) increases
 - B) decreases
 - C) first decreases then increases
 - D) first increases then decreases
56. Surface Tension is expressed in terms of
- A) N/m
 - B) N²/m
 - C) N/m²
 - D) N/m³
57. The channel without any cover at the top is known as
- A) Natural channel
 - B) Open channel
 - C) Artificial channel
 - D) None of the above

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58. Force per unit area is called
A) Pressure
B) Strain
C) Surface Tension
D) None of the above
59. Pressure _____ as the depth of the liquid increases.
A) Increases
B) Decreases
C) Remains unchange
D) None of the above
60. Bourdon tube pressure gauge is used to measure _____ pressure.
A) Low
B) High
C) High as well as low
D) Static
61. While starting the centrifugal pump, delivery valve is kept
A) Fully closed
B) Fully open
C) Half open
D) Any position
62. In a centrifugal pump, the sum of suction head and the delivery head is known as
A) Manometric head
B) Total head
C) Static head
D) Tank head
63. In a reciprocating pump, the air vessels are used for which of the following purpose ?
A) To get continuous supply of liquid at a uniform rate
B) To save the power required to drive the pump
C) To run the pump at a much higher speed without any danger of separation
D) All of the above
64. Hydraulic turbines are classified based on
A) Energy available at inlet of the turbine
B) Direction of flow through vanes
C) Head at inlet of the turbine
D) All of the above
65. The hydraulic coupling belongs to the category of
A) Energy absorbing machine
B) Energy generating machine
C) Energy transfer machine
D) Power absorbing machine

A

66. A plane figure bounded by seven equal sides is called
- A) Hexagon
 - B) Heptagon
 - C) Octagon
 - D) Pentagon
67. Out of the following which instrument is commonly used to draw parallel lines ?
- A) Scale
 - B) T-scale
 - C) Set-squares
 - D) Protractor
68. Portion of a circle, which is bounded by two radii and part of the circumference is called
- A) Sector
 - B) Semi-circle
 - C) Segment
 - D) Ellipse
69. Name of the triangle, in which three sides and three angles are different.
- A) Isosceles triangle
 - B) Right angled triangle
 - C) Equilateral triangle
 - D) Scalene triangle
70. The number of faces for an Octagonal Prism is
- A) 11
 - B) 9
 - C) 10
 - D) 8
71. Name of the plane figure which has equal sides but angles are not equal to 90 degree.
- A) Rhomboid
 - B) Square
 - C) Parallelogram
 - D) Rhombus
72. A right circular cone has _____ number of vertices.
- A) One
 - B) Three
 - C) Two
 - D) Zero

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73. A line segment joining any two points on the circle is called
A) Radius
B) Chord
C) Arc
D) Diameter
74. Which of the following plane figure have diagonals are equal and bisect each other not at right angle ?
A) Rhombus
B) Parallelogram
C) Trapezium
D) Rectangle
75. The included (interior) angle of a regular pentagon is _____ degree.
A) 120
B) 108
C) 90
D) 135
76. A straight line can easily be divided into any number of equal parts by using
A) Protractor and set square
B) Scale and set square
C) Divider and set square
D) T-square
77. Name of the geometrical solid developed by a rectangle rotates about one of its side is
A) Cylinder
B) Cone
C) Sphere
D) Cuboid
78. A regular hexagon contains 6 number of _____ triangles in it.
A) Scalene
B) Isosceles
C) Right angled
D) Equilateral
79. Two lines that makes an angle are called
A) Segment
B) Rays
C) Apex
D) Vertex

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80. Number of circles drawn within a circle, but different centers are called
- A) Concentric circle
 - B) Loop of circle
 - C) Eccentric circle
 - D) Inscribed circle
81. When a cylinder is cut by a section plane parallel to the axis, the true shape of the section is
- A) Rectangle
 - B) Ellipse
 - C) Circle
 - D) Parabola
82. In a regular polygon, the interior angle is 90 degree greater than exterior angle. The number of sides of the polygon is
- A) 5
 - B) 10
 - C) 7
 - D) 8
83. Out of the following which solid have four similar faces of equilateral triangles
- A) Hexahedron
 - B) Tetrahedron
 - C) Octahedron
 - D) Decahedron
84. A solid generated by the revolution of a right angled triangle about one of its perpendicular side is
- A) Cone
 - B) Sphere
 - C) Pyramid
 - D) Cylinder
85. When the section plane is inclined to the axis and cut all the generators of a cone, the section obtained is
- A) Hyperbola
 - B) Parabola
 - C) Ellipse
 - D) Circle
86. Area of the largest triangle that can cut from a rectangle of length "l" and breadth "b" is
- A) $lb/3$
 - B) $lb/2$
 - C) $lb/\sqrt{3}$
 - D) $lb/4$

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87. Perimeter of a rectangular ground is 240 meter and ratio of length to breadth is 5 : 3, length of the ground is
A) 75 meter
B) 40 meter
C) 45 meter
D) 80 meter
88. If radius of a sphere is doubled, then its volume will increase _____ times.
A) 2
B) 3
C) 4
D) 8
89. What is the height of a tank of 2000 liter capacity having length 2 meter and breadth 1 meter ?
A) 2 meter
B) 0.5 meter
C) 1 meter
D) 0.25 meter
90. What will be the area of circular ring of outer diameter 10 centimeter and thickness 10 millimeter ?
A) 59.66
B) 28.26
C) 128.74
D) 108.26
91. Total surface area of a Hemisphere of radius "r" can be find out by the equation
A) $2\pi r^2$
B) $4\pi r^2$
C) $2\pi r$
D) $3\pi r^2$
92. Area of a square is 100 sq.cm, what will be the area of the square of its diagonal ?
A) 200 sq.cm
B) 141 sq.cm
C) 173 sq.cm
D) 50 sq.cm
93. In a cylinder, the radius is doubled and the height is halved, then its volume will be
A) Halved
B) Same
C) Double
D) Four times

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94. What is the length of hypotenuse of a right angled triangle with sides 6 cm and 8 cm ?
A) 5 cm
B) 12 cm
C) 16 cm
D) 10 cm
95. The diameter of two cones are equal and their curved surface area are in the ratio of 4 : 7. The ratio of their slant heights are
A) 7 : 4
B) 4 : 7
C) 4 : 3
D) 3 : 4
96. Total surface area of a cube of side "a" is
A) $6a^2$
B) $4a^2$
C) a^3
D) $6a^3$
97. The volume of sphere of radius "r" is
A) $\frac{1}{3}\pi r^3$
B) $\frac{2}{3}\pi r^3$
C) $\frac{4}{3}\pi r^3$
D) $4\pi r^2$
98. Liter is the unit of cubic capacity, the capacity of a tank of length, breadth and height are one foot is _____ liter.
A) 6.28
B) 28.317
C) 30.5
D) 35.315
99. What will be the radius of the largest circle that can be drawn in a triangle of area 100 sq.cm and perimeter 50 cm ?
A) 2 cm
B) 3 cm
C) 4 cm
D) 0.5 cm
100. Curved surface area of a cylinder of radius "r" and height "h" is
A) $2\pi rh$
B) πrh
C) $2\pi r(r + h)$
D) $2\pi r^2h$
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Space for Rough Work



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