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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. Dimensional formulae of force is

A) MLT^{-2}	B) MLT^{-1}
C) MLT^2	D) MLT

2. Equilibrant is same as the resultant in magnitude but its direction is _____ to the resultant.

A) Same as	B) Twice
C) Opposite	D) Three times

3. A beam is fixed at one end and free at the other end and it is called _____ beam.

A) Overhanging	B) Cantilever
C) Simply supported	D) Continues

4. Dynamic friction is found to be _____ limiting friction.

A) More than	B) Less than
C) Equal to	D) Twice

5. In an ideal machine velocity ratio is _____ to the mechanical advantage.

A) More than	B) Less than
C) Equal to	D) Two times

6. $1 \text{ km/hr} = \text{_____ m/sec.}$

A) $5/18$	B) 1000
C) $5/9$	D) 3600

7. In _____ driving and driven shaft are right angle but not intersecting.

A) Bevel gear	B) Spur gear
C) Rack and pinion	D) Worm and worm wheel

8. In an inclined plane the velocity ratio is

A) $\frac{1}{\sin\theta}$	B) $\frac{2\pi R}{P}$
C) $\frac{1}{\cos\theta}$	D) $\frac{1}{\tan\theta}$

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9. Momentum = Mass \times _____.
- A) Velocity
B) Acceleration
C) Time
D) Displacement
10. The unit of mechanical advantage is
- A) Newton
B) Joule
C) Watt
D) No unit
11. A rubber ball is dropped from a tower it reaches the ground in one second, then the height of the tower is
- A) 4 m
B) 4.9 m
C) 6 m
D) 6.2 m
12. In a "V" belt specification "C3048 IS:2494" "C" indicates
- A) Manufactures code
B) Inside length
C) V belt cross section
D) Type of material
13. For taking high axial thrust loads _____ bearings are used.
- A) Ball bearing
B) Needle bearing
C) Tapped roller bearing
D) Roller bearing
14. The centre of gravity of a solid hemisphere of radius 'r' is at a distance of _____ from the diametral axis.
- A) $3r/8$
B) $r/2$
C) $3r/4$
D) $r/8$
15. When turning to turn a key in to a lock the force applied is
- A) Coplanar force
B) Lever
C) Couple
D) Moment
16. Which of the following is a vector quantity ?
- A) Time
B) Density
C) Acceleration
D) Mass

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17. For maximum range of a projectile the angle of projection should be _____ degree.
- A) 45
B) 30
C) 60
D) 90
18. The ratio of the speed of the driven wheel to the speed of the driving wheel is
- A) Angular velocity
B) Velocity ratio
C) Creep
D) Slip
19. Two forces of 3N and 4N which are acting at right angles to each other will have a resultant of
- A) 7N
B) 1N
C) 5N
D) 12N
20. A force acting on a body may
- A) Introduce internal stress
B) Retard its motion
C) Balance the other forces acting on it
D) All the above
21. Roughness value corresponding to the roughness grade number N2 is _____ micron.
- A) 50
B) 0.8
C) 0.05
D) 0.025
22. Tap drill size for M10 × 1 thread is _____ mm.
- A) 10.5
B) 12
C) 8
D) 8.7
23. Size of A1 drawing sheet is _____ mm.
- A) 594 × 841
B) 841 × 1189
C) 210 × 297
D) 297 × 420
24. If a line is parallel to VP and inclined to HP, it has
- A) VT only
B) HT only
C) Both HT and VT
D) None of these

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25. If a line is _____ to any one of the reference planes, its projection on that plane will have true length.
- A) Parallel
B) Inclined
C) Intersecting
D) Touching
26. The total internal angle of a regular polygon is 1800 degree, then the number of side is
- A) 12
B) 10
C) 11
D) 15
27. For making a funnel _____ development method is used.
- A) Parallel line
B) Radial line
C) Triangulation
D) Approximate
28. The angle of BSW thread is _____ degree.
- A) 60
B) 47.5
C) 45
D) 55
29. If D = nominal diameter of bolt, then distance across corner of nut is _____ mm.
- A) $1.5D$
B) $2D$
C) $1.5D + 3$
D) $2D + 3$
30. The angle of tail stock dead centre nose is _____ degree.
- A) 60
B) 45
C) 90
D) 30
31. In _____ projection the object is in between observer and plane.
- A) First angle
B) Third angle
C) Both in first angle and third angle
D) None of these
32. _____ lines are drawn usually at an angle of 45 degree to the horizontal line.
- A) Hidden
B) Centre
C) Section
D) Chain

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33. The term station point is related to _____ projection.
A) Orthographic
B) Perspective
C) Isometric
D) Oblique
34. In a double start thread the lead is equal to _____ the pitch.
A) 2 times
B) 3 times
C) Half
D) $1/3^{\text{rd}}$
35. In radial bearing the load acting is _____ to the bearing axis.
A) Parallel
B) Perpendicular
C) Inclined
D) Both inclined and perpendicular
36. What happen when the thermostat valve is removed from an engine ?
A) Engine quickly over heat
B) Not maintain working temperature
C) Engine missing
D) Decrease volumetric efficiency
37. The actual power available on the engine crankshaft is
A) BHP
B) IHP
C) FHP
D) Mechanical efficiency
38. A radiator cap contains
A) Pressure valve
B) Vacuum valve
C) Pressure and vacuum relief valve
D) Pressure and temperature relief valve
39. The zinc coated iron pipe is known as
A) Galvanized iron
B) Wrought iron
C) Stainless steel
D) Cast iron
40. Which type lubrication system is used in car engine ?
A) Splash lubrication
B) Pressure lubrication
C) Dry-sump lubrication
D) Petroil lubrication

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41. The sequence of working stroke takes place in a multi cylinder engine is called
A) Crank throw
B) Cycle
C) Mean effective pressure
D) Firing order
42. The cold starting device of a petrol engine is called
A) Choke
B) Glow plug
C) Ignition coil
D) Spark plug
43. In a petrol engine speed ratio of engine cam shaft and distributor shaft is
A) 1 : 2
B) 1 : 4
C) 2 : 1
D) 1 : 1
44. Which type valves are used in air compressor ?
A) Reed valve
B) Sleeve valve
C) Rotary valve
D) System protection valve
45. The part which convert hydraulic power in to liner force or motion by
A) Check valve
B) Flow control valve
C) NRV
D) Actuators
46. What are the reasons of blow by gases ?
A) Worn out cam journals and bearings
B) Worn out valve face and stem
C) Worn out piston rings and cylinder wall
D) Damaged head gasket and seals
47. In a diesel cycle, engine combustion takes place at
A) Constant pressure
B) Constant volume
C) Constant temperature
D) Constant entropy
48. Which among the following engine gives better balancing and more uniform torque ?
A) Radial engine
B) In-line engine
C) Square engine
D) Opposed engine

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49. In a petrol engine evaporative emission is controlled by
- A) Catalytic convertor B) EGR
C) SCR D) Carbon canister
50. Excessive valve clearance results
- A) Valve lead B) Valve lag
C) Decrease volumetric efficiency D) Both (B) and (C)
51. Which among the following is used to close the pipe ends ?
- A) Union B) Coupling
C) Cap and plug D) Nipple
52. Engine crankshaft bearings are
- A) Ball bearing B) Shell bearing
C) Foot step bearing D) Bush bearing
53. CRDI stands for
- A) Common Rail Dual Injection B) Common Rail Diesel Injection
C) Common Rack Direct Injection D) Common Rail Direct Injection
54. The transmission and control of power by means of liquid called
- A) Pneumatics B) Mechanics
C) Hydraulics D) Viscosity
55. The actuators of a hydraulic brake system is
- A) Wheel cylinder B) Master cylinder
C) Fluid lines D) Regulator valve
56. A hydraulic press works under
- A) Boyle's law B) Charles' law
C) Pascal's law D) Bernoulli's theorem

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57. What is bleeding ?
- A) Replace seals and springs of a hydraulic valve
 - B) Remove air from a hydraulic line
 - C) The process of top up or change the hydraulic fluid
 - D) The regular maintenance of a hydraulic machine
58. The flow rate of oil in a hydraulic machine is expressed in
- A) kg/cm^2
 - B) m^2/minute
 - C) kg/m^3
 - D) m^3/second
59. FRL (Filter, Regulator and Lubricator) is an essential part of
- A) Pneumatic power tool
 - B) Hydraulic press
 - C) Hydraulic brake system
 - D) Direction control valve
60. Which tool is used to hold large diameter pipes ?
- A) Channel lock plier
 - B) Pipe wrench
 - C) Chain wrench
 - D) Pipe vice
61. The valve which prevent reverse flow of fluid in a hydraulic machine
- A) Protection valve
 - B) Non-return valve
 - C) Throttle valve
 - D) Unloaded valve
62. Which device is used to connect two pipes with different diameter ?
- A) Union
 - B) Cap
 - C) Nipple
 - D) None of these
63. The process of making leak proof joint in a riveted joint is
- A) Welding
 - B) Brazing
 - C) Caulking and Fullering
 - D) Soldering
64. What is long radius elbow ?
- A) Radius is equal the bore of pipe
 - B) Radius is 1.5 times of bore of pipe
 - C) Radius is 2 times of bore of pipe
 - D) Radius is half of bore of pipe

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65. Which of the following prevents the sewer gases to building, in sanitary fittings ?
- A) Trap
B) Reducer
C) Elbow
D) Cross
66. Among the following which size of drawing sheet has its surface area 1m^2 ?
- A) A1 size
B) A0 size
C) A2 size
D) A4 size
67. In first angle projection in which quadrant the object should be placed ?
- A) First
B) Second
C) Third
D) Fourth
68. What is the shape of plan of a sphere in third angle projection ?
- A) Elliptical
B) Semicircular
C) Circular
D) Parabola
69. Irregular curves can be drawn by which of the following instrument ?
- A) Compass
B) Divider
C) Brass rule
D) French curve
70. In dimensioning, a line connecting a view to a note is called which line ?
- A) Leader line
B) Extension line
C) Object line
D) Outline
71. Among the following equations which is used for finding the volume of sphere of radius 'r' ?
- A) $\frac{1}{3} \pi r^3$
B) $\frac{4}{3} \pi r^3$
C) $\frac{2}{3} \pi r^3$
D) $\frac{3}{4} \pi r^3$
72. If the circumference of a circle is 24π , then find diameter of the circle.
- A) 12 cm
B) 24 cm
C) 6 cm
D) 48 cm

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73. If the diagonal of a square is 6 cm, then find the area of the square.
- A) 12 cm^2 B) 36 cm^2
C) 18 cm^2 D) 24 cm^2
74. Name the solid which is generated by the revolution of a rectangle about one of its sides which remains fixed.
- A) Cone B) Sphere
C) Frustum D) Cylinder
75. When cone is cut by a plane parallel to its base and removing the top portion, what is the name of the remaining portion ?
- A) Frustum of cone B) Frustum of pyramid
C) Frustum of circle D) Frustum of cylinder
76. Find the volume of a brick of dimension $6 \text{ cm} \times 3 \text{ cm} \times 2 \text{ cm}$.
- A) 36 cm^2 B) 36 cm^3
C) 18 cm^3 D) 6 cm^3
77. What is called the ratio of length of drawing of an object to the actual length of the object ?
- A) Full scale B) Diagonal scale
C) Enlarging scale D) Representative fraction
78. The eccentricity of an ellipse is always
- A) Equal to one B) More than one
C) Less than one D) None of these
79. In engineering drawing, which type of line is used to indicate the centre line of an object ?
- A) Dashed thin line B) Chain thin line
C) Chain thick line D) Dashed thick line

80. A grinding wheel travels 880 cm in each revolution. Find the diameter of the grinding wheel.
- A) 200 cm
B) 210 cm
C) 560 cm
D) 280 cm
81. The total surface area of a cube is 216 square centimetres. Calculate the volume of the cube.
- A) 216 cm^3
B) 36 cm^3
C) 18 cm^3
D) 24 cm^3
82. The volume of a metallic block is 3000 cubic centimetres. The density of the metal used for the block is 7.2 gm/cc, find the weight of the block.
- A) 3000 gm
B) 21000 gm
C) 21600 gm
D) 28000 gm
83. In third angle projection of an object where is the position of the plan of the object ?
- A) Directly above the front view
B) Directly below the front view
C) Left of the front view
D) Right of the front view
84. How T-square is specified ?
- A) According to mass
B) According to weight
C) According to blade length
D) According to blade thickness
85. Find the area of an equilateral triangle of side 4 cm.
- A) 13.84 cm^2
B) 6.92 cm^2
C) 27.68 cm^2
D) 55.36 cm^2
86. The part of a circle bounded by two radii meeting at an angle and an arc is known as
- A) Segment
B) Arc
C) Chord
D) Sector

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87. If two circles have same centre point, then they are known as
A) Eccentric circles
B) Concentric circles
C) Semicircles
D) Ellipse
88. A polygon with seven sides is known as
A) Nonagon
B) Octagon
C) Heptagon
D) Pentagon
89. The area of a rectangle is 630 square millimetres and its breadth is 35 mm. Find its length.
A) 18 mm
B) 9 mm
C) 35 mm
D) 63 mm
90. How much is the sum of the angles of a triangle ?
A) 360 degree
B) 180 degree
C) 90 degree
D) 720 degree
91. What is the angle of a straight line ?
A) 360 degree
B) 0 degree
C) 180 degree
D) 90 degree
92. If the sum of two angles is 90 degrees, then they are called which type of angles ?
A) Complementary angles
B) Right angles
C) Supplementary angles
D) Obtuse angles
93. The base and height of a right angled triangle is 5 mm and 12 mm respectively. Find length of the hypotenuse of the triangle.
A) 60 mm
B) 17 mm
C) 30 mm
D) 13 mm
94. The volume of rigid bodies is calculated by multiplying its height and
A) length
B) width
C) base area
D) slant height

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Space for Rough Work



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