F

031/217, 032/224, 036/227, 042/222, 043/223, 047/216, 052/225, 055/215, 056/218, 058/226, 065/228, 066/229, 067/221, 274

PAPER – II

DRAUGHTSMAN (CIVIL)/ DRAUGHTSMAN (MECHANICAL) / FITTER/ MACHINIST/ MACHINIST GRINDER/ MECH. AGRICULTURAL MACHINERY/ MECH. MACHINE TOOL MAINTENANCE/ MECH. MOTOR VEHICLE/ MECHANIC REFRIGERATION & AIR-CONDITIONING / OPERATOR ADVANCE MACHINE TOOL/ TOOL & DIE MAKER (DIES & MOULDS)/ TOOL & DIE MAKER (PRESS, TOOLS, JIGS & FIXTURE) / TURNER / REFRACTORY TECHNICIAN

(WORKSHOP CALCULATION & SCIENCE)

SEMESTER – III

TIME: 3 HRS. **MARKS: 75**

Note: Attempt all the questions.
All questions carry equal marks.
This paper carries negative marking. 25% marks will be deducted for each wrong answer.

Choose the correct answer.

1. If one angle of a triangle is equal to the sum of the other two angles, then the triangle is –
   a) A right angle triangle
   b) An isosceles triangle
   c) An acute angled triangle
   d) An obtuse angled triangle

2. Angles of a triangle are in the ratio 2 : 4 : 3. The smallest angle of the triangle is –
   a) 60^0
   b) 40^0
   c) 80^0
   d) 20^0

3. A part of the circumference of a circle is called –
   a) Diameter
   b) Radius
   c) Arc
   d) Chord

4. How many number tangent line drawn from any one point on the circle?
   a) 2
   b) 3
   c) 0
   d) Infinite

5. What is the complementary angle of 62^0?
   a) 38^0
   b) 28^0
   c) 118^0
   d) 62^0

6. Find the area of sector which has 6 cm radius and 100 degree angle –
   a) 62.8
   b) 31.4
   c) 10.5
   d) 5.2

7. Drill 3 cm diameter 6 holes in 6 cm x 12 cm plate. What about the area of rest part of plate?
   A) 7.06 cm^2
   b) 42.39 cm^2
   c) 192 cm^2
   d) 29.6 cm^2

8. In a cylinder, if radius is halved and height is doubled, the volume will be –
   a) Same
   b) Halved
   c) Double
   d) Four times

9. The radius of a sphere is increased by 10%. Percentage increase in volume –
   a) 10.1
   b) 33.1
   c) 44.5
   d) 64.4

10. The areas of two circles are in the ratio of 1:2. If the two circles are bent in the form of squares, what is the ratio of their areas?
   a) 1:2
   b) 1:4
   c) $1:\sqrt{2}$
   d) 1:3

11. An observer 1.6 m tall is $20\sqrt{3}$ away from a tower. The angle of elevation from his eye to the top of the tower is 300. The heights of the tower is –
   a) 21.6 m
   b) 23.2 m
   c) 24.72 m
   d) None of these

12. On applying external force on a object, shape will be changed but when we remove that force it regain its previous state then this property is called –
   a) Plasticity
   b) Elasticity
   c) Tenacity
   d) Malleability

13. The ratio of lateral strain to linear strain is called –
   a) Modulus of elasticity
   b) Modulus of rigidity
   c) Bulk modulus
   d) Poisson's ratio

14. The increase in the length of a bar of length L, area A, modulus of elasticity E due to a tensile load P is given by -
   a) PL/A^2E
   b) PL/AE
   c) PLA/E
   d) AE/PL

15. Specific heat of Aluminum –
   a) 900 J/(kg.^{0}C)
   b) 600 J/(kg.^{0}C)
   c) 226 J/(kg.^{0}C)
   d) 448 J/(kg.^{0}C)

16. Amount of heat required for 200 g water to heat from 20^0Cto 40^0C -
   a) 400 calorie
   b) 4×10^3 calorie
   c) 800 calorie
   d) Zero

17. Direction of centrifugal force is always –
   a) Towards centre
   b) Away from center
   c) Tangent to the circle
   d) Normal to the circle

18. Linear velocity =
a) Radius / angular speed
b) Radius x angular speed
c) $(\text{Radius})^2$ x angular speed
d) Angular speed / radius

19. What is the supplementary angle of 62^0?
a) 38^0
b) 28^0
c) 118^0
d) 62^0

20. If car is travelling at 6 m/s for 3 minutes, how far does car travel?
a) 20 m
b) 18 m
c) 30 m
d) 1080 m

21. With increase in temperature, thermal conductivity of a metal –
a) Increases
b) Decreases
c) Remains the same
d) None of these

22. With the increase of carbon content in steel, maximum stress –
a) Increases
b) Decreases
c) Remains the same
d) None of these

23. The angle of elevation of a ladder leaning against a wall is 60^0 and the foot of the ladder is 4.6 m away from the wall. The length of the ladder is –
A) 2.3 m
b) 4.6 m
c) 7.8 m
d) 9.2 m

24. Determine the x component of force of magnitude 2 kN force which is applied from 60 degree of x axis –
a) Fx = 1.414 kN
b) Fx = 1.00 kN
c) Fx = 1.73 kN
d) Fx = 2.414 kN

25. Breaking stress is –
a) Greater than the ultimate stress
b) Less than the ultimate stress
c) Equal to the ultimate stress
d) None of these

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