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17/A/C/S-3/4/E

31/217, 32/224, 36/227, 42/222, 43/223, 47/216, 52/225, 55/215, 56/218, 58/226, 65/228, 66/229, 67/221, 274

(F)

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

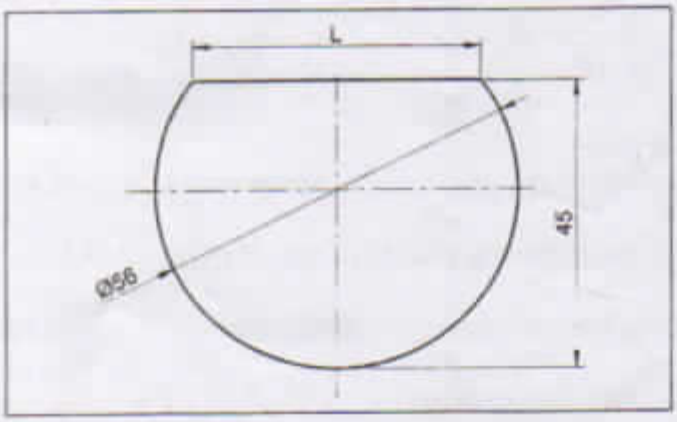
TIME: 3 HRS. **MARKS: 75**

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. An isosceles triangle has :-
   a. No sides equal b. Two sides equal c. Three sides equal d. None of these

2. The width "L" of cut out circle which has diameter of Φ56 mm and width of 45 mm as shown is:-



   a. 45mm b. 43.5mm c. 44.5mm d. 28mm

3. A train moving from rest attains a velocity of 10 meters per second in 5 seconds then its acceleration is:-
   a. 2 meters per sec^2 b. 0.5 meters per sec^2
   c. 10 meters per sec^2 d. 5 meters per sec^2

4. Area of a sector of a circle whose radius is 14 cm and the length of the arc of the sector is 28 cm is :-
   a. 196 cm^2 b. 1.0 cm^2 c. 6.844 cm^2 d. 3.50 cm^2

contd....2/-

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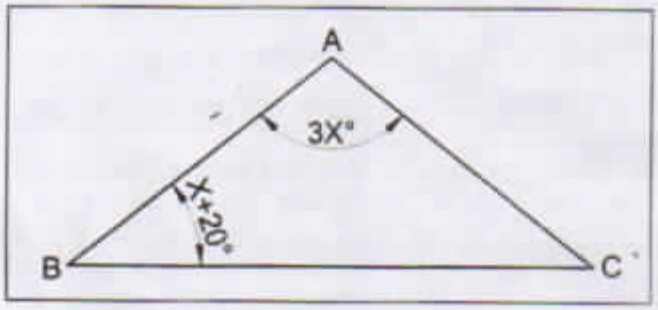
31/217, 32/224, 36/227, 42/222, 43/223, 47/216, 52/225, 55/215, 56/218, 58/226, 65/228, 66/229, 67/221, 274

5. Area of a triangle whose sides are 3 cm, 4 cm and 5 cm is:-
   a. 6 Sq cms b. 7.5 Sq cms c. 10 Sq cms d. 8 Sq cms

6. A 150 meters long train will cross an electric pole with a speed of $\frac{50}{3}$ M/Sec in:-
   a. 12 seconds b. 9 seconds c. 20 seconds d. 250 seconds

7. What is the angle of elevation of the sun when the shadow of a pole is $\sqrt{3}$ times the shadow of the pole?
   a. 30^0 b. 45^0 c) 60^0 d. None of these

8. In the diagram below of triangle ABC, AB=AC and if the base side angle "A" = 3 times X and the angle "B" = X +20^0 then the value of angle X is:-



   a. 10^0 b. 28^0 c. 32^0 d. 40^0

9. Heat is closely related with -
   a. Liquids b. Energy c. Temperature d. Entropy

10. The base of a prism is square having side of 10 cm. If its height is 8cm, then the volume of prism s –
    a. 800 cm^3 b. 850 cm^3 c. 925 cm^3 d. 700 cm^3

11. Instrument used to measure temperature is –
    a. Barometer b. Odometer c. Thermometer d. Speedometer

12. The cost of ϕ 10 cm and 20 cm long mild steel round will be (Density 7.8 gm/cm^3) and rate is Rs. 40/kg (π=3.14)–
    a. Rs. 600.34 b. Rs. 580.64 c. Rs 489.84 d. Rs. 450.50

13. If $\frac{\sin\theta+\cos\theta}{\sin\theta-\cos\theta} = 5/4$, the value of $\frac{\tan^2\theta+1}{\tan^2\theta-1}$ is _____.
    a. $\frac{25}{16}$ b. $\frac{41}{9}$ c. $\frac{41}{40}$ d. $\frac{40}{41}$

contd....3/-

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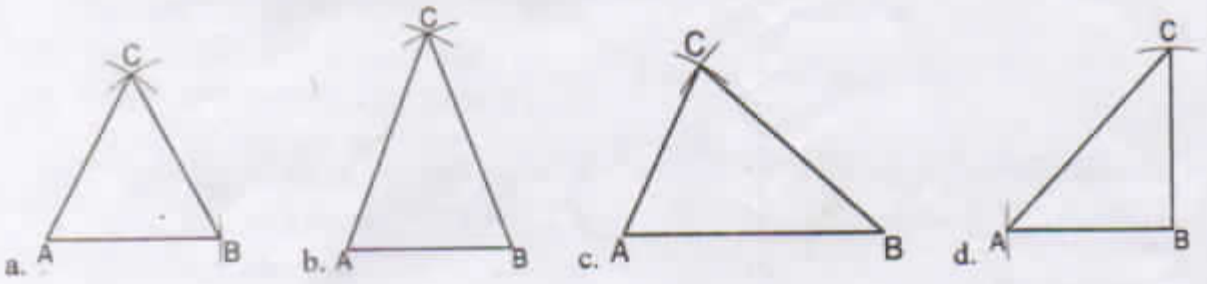
31/217, 32/224, 36/227, 42/222, 43/223, 47/216, 52/225, 55/215, 56/218, 58/226, 65/228, 66/229, 67/221, 274

14. The area of a trapezium is 384 cm^2. If the parallel sides are in the ratio of 3:5 and the perpendicular distance between then is 12 cm. The smaller of the parallel side is –
a. 20 cm b. 24 cm c. 30 cm d. 36 cm

15. Which diagram represents a correct constructional method of equilateral triangle ABC with the given side AB:-



16. When tensile stress is applied axially on a circular rod its i) diameter decreases ii) length increases iii) volume decreases. Which of these are TRUE:-
a. Only (i) b. Only (ii) c. Both (i) and (ii) d. All of these

17. A cast iron cylindrical hollow pipe has an external diameter of 20 cm. Its length is 35 cm and thickness of iron is 2 cm. What will be the volume of the metal used?
a. 3960 C^3. b. 4095cm^3 c. 3285 C^3 d. 4200 cm^3

18. The radius of one sphere is half of the other sphere. The volume of other sphere in respect to first sphere will be:-
a. Double b. Eight times c. Four times d: None of thse

19. The quantity of heat required to raise the temperature of 300 grams of copper(Sp heat 0.092 cal/gram) from 25^0C to 75^0C in K cal is:-
a. 138 K cals b. 1.38 K cals c. 207 K cals d. 2.07 K cals.

20. If a tower height is 40 meters and when two persons observe the same in opposite direction at an angle of 30^0 and 60^0 respectively, then the distance between the persons is:-
a. 69.29 meters b. 23.10 meters
c. 92.39 meters d. 80 meters

contd....4/-

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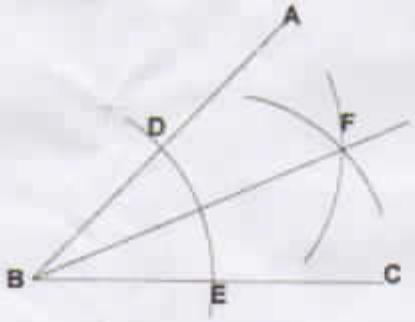
31/217, 32/224, 36/227, 42/222, 43/223, 47/216, 52/225, 55/215, 56/218, 58/226, 65/228, 66/229, 67/221, 274

21. The diagram shown below the construction of the bisector of angle ABC, which of the following statement is NOT true;-



a. Angle EBF = $\frac{1}{2}$ angle ABC
b. Angle DBF = $\frac{1}{2}$ angle ABC
c. Angle EBF = angle ABC
d. Angle DBF = angle EBF

22. Tensile strain is :-
a. $\frac{Increase\ in\ length}{Original\ length}$
b. $\frac{Decrease\ in\ length}{Original\ length}$
c. $\frac{Change\ in\ Volume}{Original\ length}$
d. All of these

23. A vehicle moving on a horizontal road may be thrown outward due to:-
a. Gravitational force
b. Normal reaction
c. Frictional force between tyres and road
d. Lack of proper centripetal force.

24. For blanking a mild steel disc 60 mm diameter from a strip of 1.5 mm thick (shear stress is = 40 kg/mm^2) the blanking pressure is:-
a. 9 kg/mm^2
b. 4 kg/mm^2
c. 0.667 kg/mm^2
d. 160 kg/mm^2

25. If a hole of 2 cm radius is drilled lengthwise throughout a cylinder of radius 6 cms and a height of 15 cms then the volume of cylinder after drilling is:-
a. 1697 cc
b. 1508.4 cc
c. 377.14 cc
d. 6034.285 cc

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