

Instructions to Students: Read all the questions thoroughly and write down the answers.

This question paper contains a total of 4 parts. They are

- I. There will be 4 questions. Each question carries 4 marks. Answer all the questions.
- II. There will be 6 questions. Each question carries 2 marks. Answer all the questions.
- III. There will be 7 questions. Each question carries 1 mark. Answer all the questions.
- IV. There will be 10 multiple choice questions each question carries $\frac{1}{2}$ mark. Answer all the questions.

I. Answer all the questions. Each question carries 4 Marks

4 x 4 = 16

1. Draw a circle of radius 6cm. From a point 10 cm away from its centre, construct the pair of tangents to the circle and measure their lengths. Verify by using Pythagoras Theorem.
2. Consider the following distribution of daily wages of 50 workers of a factory. Find the mean daily wages of the factory by using an appropriate method.

Daily wages in Rupees	200 - 250	250 - 300	300 - 350	350 - 400	400 - 450
Number of workers	12	14	8	6	10

3. A box contains 90 discs which are numbered from 1 to 90. If one disc is selected at random from the box, find the probability that bears (i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5.
4. Diagonals AC and BD of a trapezium ABCD with AB \parallel DC intersect each other at the point 'O' using the criterion of similarity for two triangles, show that $\frac{OA}{OC} = \frac{OB}{OD}$

II. Answer all the questions. Each question carries 2 Marks.

6 x 2 = 12

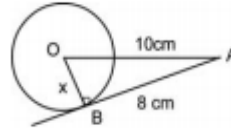
5. Show that $\cot\theta + \tan\theta = \sec\theta \cdot \operatorname{cosec}\theta$
6. Prove that the tangents to a circle at the end points of a diameter are parallel
7. Gopi buys a fish from a shop for his aquarium. The shopkeeper takes out one fish at random from a tank containing 5 male fish and 8 female fish. What is the probability that the fish taken out is a male fish?
8. The top of a clock tower is observed at angle of elevation of α° and the foot of the tower is at a distance of 'd' meters from the observer. draw the diagram for this data?
9. A ladder 25m long reaches a window of building 20m above the ground. Determine the distance from the foot of the ladder to the building?

10. The perimeters of two similar triangles are 30cm and 20cm respectively. If one side of the first triangle is 12cm, determine the corresponding side of the second triangle

III. Answer all the questions. Each question carries 1 Marks.

7 x 1 = 7

11. Find the 'x' value in the diagram?



12. If $\sin(A - B) = \frac{1}{2}$, $\cos(A + B) = \frac{1}{2}$, $0^\circ < A + B \leq 90^\circ$, $A > B$, Find A and B

13. Length, width and height of the cuboid is 5cm, 3cm, and 2cm respectively, then find the volume?

14. $\triangle ABC \sim \triangle PQR$, if $\angle A = 50^\circ$ then $\angle Q + \angle R = ?$

15. How many tangents can you draw to a circle, which are parallel to each other?

16. Find total surface area of a solid hemisphere of radius 7 cm?

17. What is the general form of linear equation in two variables?

IV. Answer all the questions. Each question carries 1/2 Marks.

10 x 1/2 = 5

18. The angle between a tangent to a circle and the radius drawn at the point of contact is

- a. 60° b. 30° c. 45° d. 90°

19. The radius and height of cylinder and cone are equal, then the ratio of their volumes is?

- a. 1:1 b. 1:3 c. 3:1 d. 1:2

20. $8 \tan x = 15$, $\sin x - \cos x = \dots ?$

- a. $5/17$ b. $6/17$ c. $7/17$ d. $8/17$

21. $1 + \tan^2 A = ?$

- a. $\sin^2 A$ b. $\sec^2 A$ c. $\csc^2 A$ d. $\cot^2 A$

22. The ratio of length of a pole and its shadow is $1:\sqrt{3}$, Find the angle of elevation of sun?

- a. 65° b. 50° c. 30° d. 60°

23. The mean of $x, x + 1, x + 2, x + 3, x + 4, x + 5$ and $x + 6$ is?

- a. x b. $x+3$ c. $x+4$ d. 3

24. What is the probability of getting two even numbers if two dice rolling simultaneously?

- a. $1/2$ b. $1/3$ c. $1/4$ d. $1/5$

25. Which of the following cannot be found by graph?

- a. arithmetic mean b. average c. median d. none

26. Arithmetic mean of first n natural numbers?

- a. $(n+1)/2$ b. $(n+4)/3$ c. $(n)/3$ d. none

27. The volume of two spheres are in the ratio 27:64. then the ratio of their surface areas is...

a. 2:3

b. 4:27

c. 8:9

d. 9 :16

Pravinnya
Nurturing Talent

ప్రౌఢవిద్య
పత్తిభూ వికాస