

ANNUAL EXAMINATION - 2024

MATHS

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 GOVT. HIGH SCHOOL,
 SANDANAPALLE
 KELAMANGALAM (TQCH)
 KESANNAKOTES (DT).

9 - STD

Time : 3.00 Hrs

Marks : 100

I Choose the correct answer from the given four alternatives.

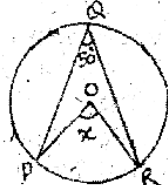
Answer all the question.

14 X 1 = 14

1. If A and B are disjoint sets then $A \cap B = \dots\dots\dots$
 a) A b) ϕ c) B d) A - B
2. An irrational number between 2 and 2.5 is
 a) $\sqrt{11}$ b) $\sqrt{5}$ c) $\sqrt{2.5}$ d) $\sqrt{8}$
3. The value of k for which the pair of linear equations $4x + 6y - 1 = 0$ and $2x + ky - 7 = 0$ represents parallel lines is
 a) $k = 3$ b) $k = 2$ c) $k = 4$ d) $k = -3$
4. If one angle of a cyclic quadrilateral is 75° , then the opposite angle is
 a) 100° b) 105° c) 85° d) 90°
5. If the points A(2,0), B(-6, 0), C(3, a-3) lie on the x - axis then the value of 'a' is
 a) 0 b) 2 c) 3 d) -6
6. In what ratio does the y-axis divides the line joining the points (-5, 1) and (2,3) internally
 a) 1 : 3 b) 2 : 5 c) 3 : 1 d) 5 : 2
7. If $2 \sin 2\theta = \sqrt{3}$, then the value of θ is
 a) 90° b) 30° c) 45° d) 60°
8. The value of $\tan 72^\circ \tan 18^\circ$ is
 a) 0 b) 1 c) 18° d) 72°
9. If the ratio of the sides of two cubes are 2:3, then ratio of their surface areas will be
 a) 4 : 6 b) 4 : 9 c) 6 : 9 d) 16 : 36
10. The volume of a cuboid is 660 cm^3 and the area of the base is 33 cm^2 . Its height is
 a) 10 cm b) 12 cm c) 20 cm d) 22 cm
11. The median of first eight whole numbers is
 a) 3 b) 3.5 c) 4 d) 4.5
12. The algebraic sum of the deviations of a set of n values from their mean is
 a) 0 b) n-1 c) n d) n + 1
13. Which of the following cannot be taken as probability of an event
 a) 0 b) $\frac{3}{5}$ c) 0.75 d) $\frac{8}{7}$
14. The probability of getting a perfect square number from 1 to 13
 a) $\frac{4}{13}$ b) $\frac{2}{13}$ c) $\frac{5}{13}$ d) $\frac{3}{13}$

II i) Answer any 10 questions. ii) Question No. 28 is compulsory. 10 X 2 = 20

15. If $n(A) = 25$, $n(B) = 40$, $n(A \cup B) = 50$ find $n(A \cap B)$.
16. Expand : $(5x + 4y) (5x - 4y)$



17. Find the value of x in the following figure.
18. In which quadrant does the following points lie? i) (3, -8) ii) (-1, -3) iii) (2, 5) iv) (-7, 3)
19. Find the centroid of the triangle whose vertices are (2, -4), (-3, -7) and (7, 2).
20. If $\cos A = \frac{3}{5}$ then find $\sin A$ and $\tan A$.

21. Find TSA and LSA of the cube whose side is 5cm.
 22. Find the volume of a cuboid whose dimensions are $l = 1\text{cm}$; $b = 8\text{cm}$ and $h = 6\text{cm}$.
 23. A cubical tank can hold 64,000 litres of water. Find the length of its side in meters.
 24. Find the median of the given values. 47, 53, 62, 71, 83, 21, 43, 47, 41.
 25. A set of numbers consists of five 4's, four 5's, nine 6's and six 9's. What is the mode.
 26. When two coins are tossed, what is the probability of getting two heads?
 27. When a dice is rolled, find the probability of getting a number which is greater than 4?
 28. The average marks of 25 students was found to be 78.4. Later on, it was found that score of 96 was misread as 69. Find the correct mean of the marks.

III. i) Answer any 10 questions. ii) Question No. 42 is compulsory. $10 \times 5 = 50$

29. Verify : $A - (B \cap C) = (A - B) \cup (A - C)$ using Venn diagram.
 30. Rationalise the denominator and simplify : $\frac{\sqrt{5}}{\sqrt{6+2}} = \frac{\sqrt{5}}{\sqrt{6-2}}$
 31. Factorise : $x^3 - 10x^2 - x + 10$. (Using synthetic division)
 32. The angles of a quadrilateral are in the ratio 2 : 4 : 5 : 7. Find all the angles.
 33. Show that the points A (-4, -3), B (3, 1), C (3, 6), D (-4, 2) taken in the order form the vertices of a parallelogram.
 34. In what ratio does the point P (-2, 4) divide the line segment joining the points A (-3, 6) and B (1, -2) internally?
 35. If $3\cot A = 2$, then find the value of $\frac{4\sin A - 3\cos A}{\sin A + 3\cos A}$
 36. Find the value of i) $\tan^2 60^\circ - 2\tan^2 45^\circ - \cot^2 30^\circ + 2\sin^2 30^\circ + \frac{3}{4}\text{cosec}^2 45^\circ$.
 ii) $\frac{\cos 35^\circ}{\sin 55^\circ} + \frac{\sin 12^\circ}{\cos 78^\circ} - \frac{\cos 18^\circ}{\sin 72^\circ}$
 37. Using Heron's formula, find the area of a triangle whose sides are 10cm, 24cm, 26cm.
 38. If the mean of the following data is 20.2 then find the value of p.

Marks	10	15	20	25	30
No. of Students	6	8	p	10	6

39. The following are the marks scored by the students in the Summative Assessment Exam. Calculate the median of the given data

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of Students	2	7	15	10	11	5

40. Find the mode of the following data.

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	22	38	46	34	20

41. Two dice are rolled, find the probability that the sum of the face numbers is
 a) equal to 7 b) equal to 4 c) less than 13
 42. The dimensions of a sweet box are 22cm X 18cm X 10cm. How many such boxes can be packed in a carton of dimensions 1m X 88cm X 63cm?

IV. Answer the following questions.

43. a) Construct ΔPQR whose sides are $PQ = 6\text{cm}$, $\angle Q = 60^\circ$ and $QR = 7\text{cm}$ and locate its orthocentre. (OR)
 b) Draw a triangle ABC, where $AB = 8\text{cm}$, $BC = 6\text{cm}$ and $\angle B = 70^\circ$ and locate its circumcentre and draw the circumcircle.
 44. a) Draw the graph of $y = 2x$. (OR)
 b) Use graphical method to solve the following system of linear equations
 $x + y = 5$; $2x - y = 4$.