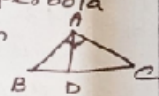


HOLY MOTHER MATRICULATION SCHOOL - MELAKKANAVAT
 CLASS: X ONE MARKS Full Portions

NAME: _____
 MATHEMATICS
 Choose and write the correct answer. MARKS: 50 MARKS

- If $f: A \rightarrow B$ is a bijective function and if $n(B) = 7$ then $n(A)$ is equal to
 a) 7 b) 49 c) 1 d) 14
 - If the HCF of 65 and 117 is expressible in the form of $65m - 117$, then the value of m is
 a) 1 b) 2 c) 1 d) 3
 - Graph of a linear equation is a
 a) straight line b) circle c) parabola d) hyperbola
 - In the adjacent figure $\angle BAC = 90^\circ$ and $AD \perp BC$ then
 a) $BD \cdot CD = BC^2$ b) $AB \cdot AC = BC^2$ c) $BD \cdot CD = AD^2$
 d) $AB \cdot AC = AD^2$
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- The equation of a line passing through the origin and perpendicular to the line $7x - 3y + 4 = 0$
 a) $7x - 3y + 4 = 0$ b) $3x - 7y + 4 = 0$
 c) $3x + 7y = 0$ d) $7x - 3y = 0$
 - If $\sin \theta = \cos \theta$, then $2 \tan^2 \theta + \sin^2 \theta - 1$ is equal to
 a) $-\frac{3}{2}$ b) $\frac{3}{2}$ c) $\frac{2}{3}$ d) $-\frac{2}{3}$
 - The total surface area of a cylinder whose radius is $\frac{1}{3}$ of its height.
 a) $\frac{9\pi h^2}{8} \text{ sq. u}$ b) $24\pi h^2 \text{ sq. u}$ c) $\frac{8\pi h^2}{7} \text{ sq. u}$ d) $\frac{56\pi h^2}{9} \text{ sq. u}$
 - If the mean and coefficient of variation of data are 4 and 87.5% then the standard deviation is
 a) 3.5 b) 3 c) 4.5 d) 2.5
 - If the ordered pair $(a+2, 4)$ and $(5, 2a+b)$ are equal, then
 a) $(2, -2)$ b) $(5, 1)$ c) $(2, 3)$ d) $(3, -2)$
 - If for all $a_1, a_2 \in A$ $f(a_1) = f(a_2)$ implies $a_1 = a_2$, then f is called
 a) injection b) surjection c) bijection d) many one function
 - An A.P consists of 31 terms. If its 16th term is m , the sum of all the terms of this A.P is
 a) $16m$ b) $62m$ c) $31m$ d) $\frac{31}{2}m$

- 1 -
- If A is a 2×3 matrix and B is a 3×4 matrix, how many columns does AB have
 a) 3 b) 4 c) 2 d) 5
 - If $\triangle ABC$ is an isosceles triangle with $\angle C = 90^\circ$ and $AC = 5$, then AB is
 a) 2.5 cm b) 5 cm c) 10 cm d) $5\sqrt{2}$ cm
 - $(2, 1)$ is the point of intersection of two lines
 a) $x - y - 3 = 0$; $3x - y - 7 = 0$ b) $x + y = 3$; $3x + y = 7$
 c) $3x + y = 3$; $x + y = 7$ d) $x + 3y - 3 = 0$; $x - y - 7 = 0$
 - A tower is 60m height. Its shadow is 2 meters shorter when the sun's altitude is 45° than when it has been 30° , then x is equal to
 a) 41.92 b) 43.92 m c) 43 m d) 45.6 m
 - A solid sphere of radius x cm is melted and cast into a shape of a solid cone of same radius. The height of the cone is
 a) $3x$ cm b) x cm c) x cm d) $2x$ cm
 - The range of the data 8, 8, 8, 8, ... 8 is
 a) 0 b) 1 c) 8 d) 3
 - $f(x) = (x+1)^3 - (x-1)^3$ represents
 a) a linear function b) a cubic function
 c) a reciprocal function d) a quadratic function
 - The next term of the sequence $\frac{3}{16}, \frac{1}{8}, \frac{1}{12}, \frac{1}{18}, \dots$ is
 a) $\frac{1}{24}$ b) $\frac{1}{27}$ c) $\frac{2}{3}$ d) $\frac{1}{81}$
 - Which of the following should be added to make $x^2 + 4x$ a perfect square
 a) $4x^2$ b) $16x^2$ c) $8x^2$ d) $-8x^2$
 - How many tangents can be drawn to the circle from an exterior point
 a) one b) two c) infinite d) zero
 - The area of triangle formed by the points $(-5, 0)$, $(0, -5)$, $(5, 5)$
 a) 0 sq. u b) 25 sq. u c) 55 sq. u d) none of these
 - If $a \equiv b \pmod{m}$ then $b \equiv \dots \pmod{m}$
 a) a b) b c) $a+b$ d) $a-b$
 - $\tan \theta \operatorname{cosec}^2 \theta - \tan \theta$ is equal to
 a) $\sec \theta$ b) $\cot^2 \theta$ c) $\sin \theta$ d) $\cot \theta$
 - A spherical ball of radius r_1 units is melted to make 8 new identical balls each of radius r_2 units. Then r_1, r_2 is
 a) 2:1 b) 1:2 c) 4:1 d) 1:4

26. If a letter is chosen at random from the English alphabets $\{a, b, \dots, z\}$ then the probability that the letter between chosen precedes x a) $\frac{12}{13}$ b) $\frac{1}{13}$ c) $\frac{23}{26}$ d) $\frac{3}{26}$
27. $A = \{a, b, g\}$ $B = \{p, q, r, s\}$ then $n(A \times B)$ is a) 8 b) 20 c) 12 d) 16
28. The least no. of divisible by all the numbers from 1 to 10 (both inclusive) a) 2025 b) 5220 c) 5025 d) 2520
29. Transpose of a column matrix is a) unit matrix b) Diagonal matrix c) Column matrix d) Row matrix
30. Two poles of heights 6m and 11m stand vertically on a plane ground. If the distance between their feet is 12m. What is the distance between their tops? a) 13cm b) 14m c) 15m d) 12.8m
31. Slope of the line $2x + 3y + 6 = 0$ is a) $\frac{2}{3}$ b) $-\frac{2}{3}$ c) -2 d) $\frac{1}{2}$
32. The slope of the line which is perpendicular to a line joining the points $(0, 0)$ and $(8, 8)$ is a) -1 b) 1 c) $\frac{1}{3}$ d) -8
33. If the ratio of the height of a tower and the length of its shadow is $\sqrt{3} : 1$, then the angle of elevation of the sun has measure a) 45° b) 30° c) 90° d) 60°
34. The curved surface area of a right circular cone of height 15cm and base diameter 16cm is a) $60\pi\text{cm}^2$ b) $69\pi\text{cm}^2$ c) $120\pi\text{cm}^2$ d) $136\pi\text{cm}^2$
35. Variance of first 20 natural number is a) 32.25 b) 44.25 c) 33.25 d) 30
36. If there are 1024 relation from a set $A = \{1, 2, 3, 4, 5\}$ to a set B, then the number of elements in B is a) 3 b) 2 c) 4 d) 8
37. Given $F_1 = 1$ $F_2 = 3$ and $F_n = F_{n-1} + F_{n-2}$ then F_5 is a) 3 b) 5 c) 8 d) 11
38. Find the matrix X if $2X + \begin{bmatrix} 3 \\ 5 \end{bmatrix} = \begin{bmatrix} 5 & 7 \\ 9 & 5 \end{bmatrix}$
 a) $\begin{bmatrix} -2 & -2 \\ 2 & -1 \end{bmatrix}$ b) $\begin{bmatrix} 2 & 2 \\ 2 & -1 \end{bmatrix}$ c) $\begin{bmatrix} 1 & 2 \\ 2 & 2 \end{bmatrix}$ d) $\begin{bmatrix} 2 & 1 \\ 2 & 2 \end{bmatrix}$

39. The two tangents from an external point P to a circle with centre at O are PA and PB. If $\angle APB = 70^\circ$ then the value of $\angle AOB$ is a) 100° b) 110° c) 120° d) 130°
40. If the points $(1, -1)$ $(2, 1)$ and $(4, x)$ lie on a line, then x is a) 1 b) 2 c) 4 d) 5
41. The point of intersection of $3x - y = 1$ and $x + y = 8$ is a) $(5, 3)$ b) $(2, 4)$ c) $(3, 5)$ d) $(4, 4)$
42. $(1 + \tan A + \sec A)(1 + \cot A - \operatorname{cosec} A)$ is equal to a) 0 b) 1 c) 2 d) -1
43. The height of a right circular cone whose radius is 5cm and slant height is 13cm will be a) 12cm b) 10cm c) 13cm d) 5cm
44. The probability of getting a job for a person is $\frac{2}{3}$. If the probability of not getting the job is $\frac{2}{3}$ then the value of x is a) 2 b) 1 c) 3 d) 1.5
45. If $\{(a, 8), (6, b)\}$ represent an identity function, then the value of a and b are respectively a) $(8, 6)$ b) $(8, 8)$ c) $(6, 8)$ d) $(6, 6)$
46. The ratio of radii and the ratio of heights of two cylinders are 1:2 then the ratio of their volumes is
47. The value of $(1^3 + 2^3 + 3^3 + \dots + 15^3) - (1 + 2 + 3 + \dots + 15)$ is a) 1400 b) 1200 c) 14280 d) 14520
48. $\frac{x}{x^2 - 25} - \frac{8}{x^2 + 6x + 5}$ gives a) $\frac{x^2 - 7x + 40}{(x-5)(x+5)}$
 b) $\frac{x^2 + 7x + 40}{(x-5)(x+5)(x+1)}$ c) $\frac{x^2 - 7x + 40}{(x^2 - 25)(x+1)}$ d) $\frac{x^2 + 10}{(x^2 - 25)(x+1)}$
49. In $\triangle LMN$ $\angle L = 60^\circ$, $\angle M = 50^\circ$ If $\triangle LMN \sim \triangle PQR$, then the value of $\angle R$ is a) 40° b) 70° c) 30° d) 110°
50. When proving that a quadrilateral is a trapezium, it is necessary to show a) two sides are parallel b) Two parallel and two non-parallel sides c) opposite sides are parallel d) All sides are of equal length.