MATHEMATICS

MCQ's:

1.) Radha deposited ₹400 per month in a recurring deposit account for 18 months.
The qualifying sum of money for the calculation of interest is:

(a) ₹ 3600
(b) ₹ 7200
(c) ₹ 68,400
(d) ₹ 1,36,800

2.) Find the value of $\frac{\sin\Theta - 2sin^3\Theta}{2cos^3\Theta - cos\Theta}$

(a) tan Θ
(b) cot Θ
(c) sin Θ
(d) cos Θ

3.) If '*a*' is a natural number and one of the roots of the equation $3x^2 - 14x + 8 = 0$, then the value of a is:

(a) 4
(b) $\frac{2}{3}$
(c) 8
(d) 6

4.) The mean proportion of between 9 and 16 is:

(a) 7

(b) 12

(c) 25

(d) 144

5.) Find the mean of the following observation:

Class	Frequency
0-200	14
200-400	15
400-600	14
600-800	7

(a) 356

(b) 412

(c) 440

(d) 520

6.) A coin is tossed 100 times and it is found that head appears 36 times and tail appears 64 times. If a coin is tossed at random, what is the probability of getting a head?

(a) $\frac{9}{25}$

(b) $\frac{7}{25}$

(c) $\frac{6}{25}$

(d) $\frac{9}{25}$

7.) If the sum of remainders obtained on dividing $x^3 + (kx+8)x+ k$ by x+1 and x-2 is 1, then the value of k is:

(a) 2

(b) 1

(c) -1

(d) -2

8.) Find the radius of a cylinder, if the ratio between the radius and height is 5 : 7 and its volume is $4400cm^3$.

(a) 2 cm

(b) 5 cm

(c) 8 cm

(d) 10 cm

9.)The solution set of $-3 + x \leq \frac{8x}{3} + 2 \leq \frac{14}{3} + 2x$, $x \in R$ is:

(a) $-3 < x < 4$

(b) $-3 \leq x \leq 4$

(c) $-3 < x \leq 4$

(d) $-3 \leq x < 4$

10.) The median of a grouped frequency distribution of found graphically by drawing:

(a) a linear graph

(b) a histogram

(c) a frequency polygon

(d) a cumulative frequency curve

11.) The angles of elevation of an aeroplane flying vertically above the ground as observed from two consecutives stones 1 km apart are 45° and 60°. The height of the aeroplane above the ground (in km) is:

(a) $\frac{\sqrt{3}+1}{2}$

(b) $\frac{3+\sqrt{3}}{2}$

(c) $3 + \sqrt{3}$

(d) $\sqrt{3} + 1$

12.) In size transformation, the given figure is called an object and the resulting figure is called its:

(a) pre-image

(b) post-image

(c) image

(d) enlarge object

13.) Which of the following quadratic equations has 2 and 3 as its roots?

(a) $x^2 - 5x + 6 = 0$

(b) $x^2 + 5x + 6 = 0$

(c) $x^2 - 5x - 6 = 0$

(d) $x^2 + 5x - 6 = 0$

14.) Given that the sum of the squares of the first seven natural numbers is 140, then their mean is:

(a) 20

(b) 70

(c) 280

(d) 980

15.) A bag contains 3 red and 2 blue marbles. A marble is drawn at random. The probability of drawing a black marble is:

(a) 0

(b) $\frac{1}{5}$

(c) $\frac{2}{5}$

(d) $\frac{3}{5}$

16.) What must be subtracted from the polynomial X^3+X^2-2X+1, so that the result is exactly divisible by (X-3)?

a) -31

b) -30

c) 30

d) 31

17) The roots of the quadratic equation $px^2-qx+r=0$ are real and equal if:

a) $p^2= 4qr$

b) $q^2= 4pr$

c) $-q^2=4pr$

d) $p^2>4qr$

18) If matrix A= $\begin{bmatrix} 0 & 2 \\ 2 & 2 \end{bmatrix}$ and $A^2 = \begin{bmatrix} 0 & 4 \\ 4 & x \end{bmatrix}$, then the value of x is?

a) 2

b) 4

c) 8

d) 10

19) The median value of the following observations arranged in ascending order is 64. Find the value of x.

27,31,46,52,x,x+4, 71, 79, 85, 90

a) 60
b) 61
c) 62
d) 66

20) Points A(x,y) , B(3,-2) and C (4,-5) are collinear. The value of y in terms of x is :

a) 3x-11
b) 11-3x
c) 3x-7

d) 7-3x

21) The 7^{th} term of the given AP is:

1/a , (1/a + 1), (1/a + 2),.... ?

a) 1/a + 6
b) 1/a + 7
c) 1/a + 8
d) 1/a + 7^7

22) The sum invested to purchase 15 shares of a company of nominal value 75/- available at a discount of 20% is:

a) 60/-
b) 90/-
c) 1350/-
d) 900/-

ANSWERS:

1) ₹ 7200
2) tan Θ
3) 4
4) 12
5) 356
6) 9/25
7) 2
8) 10 cm
9) $-3 < x \leq 4$
10) (d) a cumulative frequency curve
11) (a) $(\sqrt{3} + 1)/2$
12) (c) image
13) (a) $x^2 - 5x + 6 = 0$
14) (a) 20
15) (a) 0
16) (b) -30
17) (b) $q^2 = 4pr$
18) 8
19) 60
20) 3x - 7
21) 1/a + 6
22) ₹ 900