Class 10 Math Test Paper 7 [MCQ] CLASS 10 - MATHEMATICS

Time Allowed : 60 mins

Section A

1)	HCF	of	144	and	198	is:	[1]			
	a)	18						b)	12	
	c)	9						d)	6	

- 2) 180 can be expressed as a product of its prime factors as [1]
 - a) $4 \times 9 \times 5$ b) $2^2 \times 3^2 \times 5$ c) $10 \times 2 \times 3^2$ d) $25 \times 4 \times 3$
- 3) Which of the following is an irrational number? i. $\frac{22}{7}$
 - ii. 3.1416
 - iii. $3.\overline{1416}$
 - iv. 3.141141114...
 - [1]a) Option (iv)b) Option (iii)c) Option (i)d) Option (ii)
- 4) If α , β are zeroes of a polynomial $p(x) = 2x^2 x 1$ then $\alpha^2 + \beta^2$ is equal to [1] a) $\frac{-3}{4}$ b) $\frac{1}{4}$ c) $\frac{3}{4}$ d) $\frac{5}{4}$
- 5) If one zero of the polynomial $x^2 3kx + 4k$ be twice the other, then the value of k is: [1] a) - 2 b) $\frac{1}{2}$ c) $-\frac{1}{2}$ d) 2
- 6) If α , β are the zeros of $kx^2 2x + 3k$ such that $\alpha + \beta = \alpha\beta$ then k = ? [1] a) $\frac{-1}{3}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{7}{2}$
- 7) The condition for the system of linear equations ax + by
 = c; lx + my = n to have a unique solution is [1]
 a) Am≠ bl
 b) Al≠ bm
 c) Al = bm
 d) Am = bl
- 8) The graph of the linear equation 2x + 5y = 10 meets the x axis at the point. [1]
 a) (2, 0) b) (5, 0)
 - c) (0, 5) d) (0, 2)
- 9) Graphically, the pair of equations 6x 2y = 21 and 2x 3y + 7 = 0 represents two lines which are: [1]
 - a) Parallel
 - b) Coincident
 - c) Intersecting exactly at one point
 - d) Intersecting exactly at two points
- 10) If x = 1 is a common root of the equations ax² + ax + 3 = 0 and x² + x + b = 0, then ab = [1]
 a) 6
 b) 3
 c) 3
 d) 3.5
- 11) A two digit number is such that the product of the digits is 12. When 36 is added to the number then the digits interchange their places. The number is [1]

- a) 26 b) 34 c) 43 d) 62
- 12) Which of the following quadratic equations has sum of its roots as 4? [1]
 - a) $\sqrt{2x^2} \frac{4}{\sqrt{2}}x + 1 = 0$ b) $2x^2 - 4x + 8 = 0$ c) $-x^2 + 4x + 4 = 0$ d) $4x^2 - 4x + 4 = 0$
- 13) In an AP, if d = -4, n = 7 and $a_n = 4$, then the value of a is [1] a) 20 b) 6
 - c) 7 d) 28
- 14) A thief runs away from a police station with a uniform speed of 100 m/minute. After one minute a policeman runs behind the thief to catch him. He goes at speed of 100 m/minute in first minute and increases his speed 10 m each succeeding minute. After how many minutes, the policeman will catch the thief? [1]

15) If $a_1 = 4$ and $a_n = 4a_{n-1} + 3$, n > 1, then the value of a_4 is [1]

- a) 320 b) 329 c) 319 d) 300
- 16) If in two triangles ABC and PQR, ∠ A = ∠ Q and ∠ R = ∠ B, then which of the following will be NOT true.
 [1]
 - a) $\frac{AB}{PQ} = \frac{BC}{RP}$ b) $\frac{BC}{PR} = \frac{AC}{PQ}$ c) $\frac{BC}{RP} = \frac{AB}{QR}$ d) $\frac{AB}{QR} = \frac{AC}{PQ}$
- 17) If $\Delta ABC \sim \Delta PQR$ such that AB = 9.1 cm and PQ = 6.5 cm. If the perimeter of ΔPQR is 25 cm, then the
 - perimeter of $\triangle ABC$ is [1] a) 36 cm b) 30 cm
 - c) 35 cm d) 34 cm
- 18) The line segments joining the midpoints of the sides of a triangle form four triangles, each of which is [1]
 - a) An isosceles triangle
 - b) An equilateral triangle
 - c) Similar to the original triangle
 - d) Congruent to the original triangle
- 19) If $(\tan\theta + \cot\theta) = 5$ then $(\tan^2\theta + \cot^2\theta) = ?$ [1] b) 25 a) 23 c) 24 d) 27 - 4 = 0, then the value of $\frac{5\sin\theta - 4\cos\theta}{5\sin\theta + 4\cos\theta}$ 20) If 5 $tan\theta$ is [1] a) $\frac{3}{3}$ $\frac{1}{6}$ b) $\frac{5}{6}$ c) d)

Maximum Marks : 30

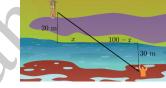
- 21) If $2 \cos\theta = 1$, then the value of θ is [1] a) 60° b) 30° c) 45° d) 90°
- 22) Assertion: x² + 4x + 5 has two zeroes.
 Reason: A quadratic polynomial can have at the most two zeroes. [1]
 - a) Assertion and reason both are correct statements and reason is correct explanation for assertion.
 - b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.
 - c) Assertion is correct statement but reason is wrong statement.
 - d) Assertion is wrong statement but reason is correct statement.
- 23) Assertion (A): The value of $q = \pm 2$, if x = 3, y = 1 is the solution of the line $2x + y - q^2 - 3 = 0$ Reason (R): The solution of the line will satisfy the equation of the line. [1]
 - a) Both A and R are true and R is the correct explanation of A.
 - b) Both A and R are true but R is not the correct explanation of A.
 - c) A is true but R is false.
 - d) A is false but R is true.
- 24) Assertion (A): Sum of first n terms in an A.P. is given by the formula: $S_n = 2n \times [2a + (n - 1)d]$ Reason (R): Sum of first 15 terms of 2, 5, 8 ... is 345. [1]
 - a) Both A and R are true and R is the correct explanation of A.
 - b) Both A and R are true but R is not the correct explanation of A.
 - c) A is true but R is false.
 - d) A is false but R is true.
- 25) Assertion (A): If two triangles are similar then they are congruent also.

Reason (R): Ratio of perimeters of two triangles is always equal to ratio of their corresponding sides, medians, altitudes and angle bisectors. [1]

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.
- 26) Assertion (A): For $0 < \theta \le 90^{\circ}$, $\csc \theta \cot \theta$ and $\csc \theta + \cot \theta$ are reciprocal of each other. Reason (R): $\csc^2 \theta - \cot^2 \theta = 1$. [1]
 - - a) Both A and R are true and R is the correct explanation of A.
 - b) Both A and R are true but R is not the correct explanation of A.
 - c) A is true but R is false.
 - d) A is false but R is true.

Section B

27) Read the text carefully and answer the questions: Swimmer in Distress: A lifeguard located 20 metre from the water spots a swimmer in distress. The swimmer is 30 metre from shore and 100 metre east of the lifeguard. Suppose the lifeguard runs and then swims to the swimmer in a direct line, as shown in the figure.



[4]

- (a) How far east from his original position will he enter the water? (Hint: Find the value of x in the sketch.)
- (b) Which similarity criterion of triangle is used?
- (c) What is the distance of swimmer from the shore?
- (d) What is the length of AD?