

TEST-3
Syllabus:

(Ch# 5,6,16, (Theorem #-1,2,3) SQ-13,15,16 Define of these chapter.

MATHEMATICS (SCIENCE) -019 (9TH CLASS)
TIME ALLOWED: 20 Min

PAPER: II (OBJECTIVE

Marks: 15

Note: Four possible answers A, B, C and D to each question are given. The choice which you think is correct fill that circle in front of that question with marker or Pen ink in the answer-book. Cutting or filling two or more circle will result in zero mark in that question.

1.1 What will be added to complete the square of $9a^2 - 12ab$?

- A. $-16b^2$ B. $16b^2$ C. $4b^2$ D.

$-4b^2$

2. Find m so that $x^2 + 4x + m$ is a complete square.

- A. 8 B. -8 C. 4 D. 16

3. There are _____ methods (s) to find H.C.F.

- A. 1 B. 2 C. 3 D. 4

4. Which of the following sets of lengths can be lengths of the sides of a triangle?

- A. 1cm, 2cm, 3cm B. 2cm, 3cm, 5cm C. 2cm, 4cm, 7cm
D. 3cm, 4cm, 5cm

5. Two sides of a triangle measure 10cm and 15cm. Which measure is possible for third side?

- A. 5cm B. 20cm C. 25cm D. 30cm

6. Difference of two sides of a triangle is _____ than/to the third side.

- A. $<$ B. $\cong$ C. $>$ D. $<$

7. From a point, outside a line, the _____ is the shortest distance from the point to the line.

- A. Perpendicular B. Altitude C. Median D.
Right Bisector

8. If 3cm and 4cm are two sides of a right-angle triangle, then hypotenuse is _____

- A. 25cm B. 7cm C. 6cm
D. 5cm

9. If hypotenuse of an isosceles right-angle triangle is $\sqrt{2}cm$ then each of the other side is of length _____

- A. 2cm B. 1cm C. 3cm D. 4cm

10. A diagonal of parallelogram divides it into _____ congruent triangles.

- A. 4 B. 5 C. 3 D. 2

11. The line segment joining the mid points of opposite sides of a parallelogram, divides it into _____ equal _____ parallelograms.

- A. 4 B. 5 C. 3 D. 2

12. Factors of $x^2 - 5x + 6$ are _____

- A. $(x-2)(x-3)$ B. $(x-2)(x+3)$ C. $(x+2)(x+3)$ D. $(x+2)(x-3)$

13. If $(x-2)$ is a factor of $p(x) = x^2 + 2kx + 8$, then $k =$ _____

- A. 3 B. 2 C. 9 D. -3

14. Before division we arrange data in _____ order.

- A. Ascending B. Descending C. Standard D. Simple

15. The product of two algebraic expressions is equal to _____ of their H.C.F and L.C.M.

- A. Sum B. Difference C. Product D. Quotient

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MATHEMATICS (SCIENCE) 019-(9TH CLASS)

Paper: (Essay Type)

Time Allowed: 2:10 hours

Maximum.

Marks:60

(PART - I)

2. Write short answers to any SIX (6) questions:

12

(i) Define H.C.F.

(ii) Factorize $(x^2 - y^2)z + (y^2 - z^2)x$.

(iii) Factorize $3x - 243x^3$.

(iv) Factorize $x^2 - y^2 - 4xz + 4z^2$.

(v) Find H.C.F $102x^2y^2z, 85x^2yz, 187xyz^2$.

(vi) Find square root by factorization. $(x^2 + 3x + 2)(x^2 + 4x + 3)(x^2 + 5x + 6)$.

(vii) Find square root of $4x^2 - 12xy + 9y^2$.

(viii) Find L.C.M of $x^2 - 25x + 100$ and $x^2 - x - 20$.

(ix) The sum of two numbers is 120 and their H.C.F is 12. Find the numbers.

3. Write short answers to any SIX (6) questions:

12

(i) 3cm, 4cm and 7cm are not the lengths of the triangle. Give reason.

(ii) If 3cm and 4cm are two sides of a right-angle triangle then what should be the third length of the triangle.

(iii) A plane is at height of 300m and is 500m away from the airport. How much distance will it travel to land at airport.

(iv) The three sides of a triangle are of measure 8, x and 17 respectively. For what value of 'x' will it become base of a right triangle.

(v) What is zero of a polynomials?

(vi) Find square root of $4x^4 + 12x^3 + x^2 - 12x + 4$.

(vii) Use remainder theorem to find remainder when $(2x-1)^3 + 6(3+4x)^2 - 10$ is divided by $(2x+1)$.

(viii) Find a polynomial $p(x)$ of degree 3 that has 2, -1 and 3 as zeros.

(ix) Determine if $(x-2)$ is a factor of $x^3 - 4x^2 + 3x + 2$.

4. Write short answers to any SIX (6) questions:

12

(i). Factorize $x^2 - 21x + 108$.

(ii) Factorize $3x^2 - 38xy - 13y^2$

(iii) Factorize $(x^2 + 5x + 4)(x^2 + 5x + 6) - 3$.

(iv) Factorize $8x^3 - 125y^3 - 60x^2y + 150xy^2$.

(v) Find remainder when $9x^2 - 6x + 2$ is divided by $(x-3)$.

(vi) Find square root of $4 + 25x^2 - 12x - 24x^3 + 16x^4$.

(vii) Define L.C.M.

(viii) Find L.C.M

$$39x^7y^3 \text{ and } 91x^5y^6z^7$$

(ix) Simplify

$$\frac{x^2+x-6}{x^2-x-6} \times \frac{x^2-4}{x^2-9}$$

(PART - II)

Note: Attempt any THREE questions, but question 9 is compulsory.

5. (a) The expression $ax^3 - 9x^2 + bx + 3a$ is exactly divisible by $x^2 - 5x + 6$.

Find **4**
values of 'a' and 'b'.

(b) Simplify $\frac{x^4 - 8x}{2x^2 + 5x - 3} \times \frac{2x - 1}{x^2 + 2x + 4} \times \frac{x + 3}{x^2 - 2x}$.

4

6. (a) Factorize $(x+1)(x+2)(x+3)(x+6) - 3x^2$.

4

(b) For what value of 'm' and 'l' the expression $49x^4 - 70x^3 + 109x^2 + lx - m$ will **4** become a perfect square.

7. (a) Factorize the cubic polynomial $3x^3 - x^2 - 12x + 4$ by factor theorem.

4

(b) Simplify $\left(\frac{x^2 + y^2}{x^2 - y^2} - \frac{x^2 - y^2}{x^2 + y^2} \right) \div \left(\frac{x + y}{x - y} - \frac{x - y}{x + y} \right)$.

4

8. (a) For what value of 'k' is $(x+4)$ the H.C.F of $x^2 + x - (2k+2)$ and $2x^2 + kx - 12$. **4**

(b) In a parallelogram ABCD $m\angle B = 10^\circ$. The altitudes corresponding to sides $m\angle B$ **4** and $m\angle D$ are respectively 7cm and 8cm. Find $m\angle D$.

9 Prove that parallelograms on the same base and between the same parallel lines are equal in area.

8

OR

Prove that triangles on the same base and of the same altitudes are equal in area.