

# SLIP TEST-1

Time : 1 hr.

## CHAPTER-1: REALNUMBERS

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

3 × 1 = 3M

1. The prime factorisation of 729 is ..... [   ]  
A)  $3^6$                       B)  $3^5$                       C)  $3^4$                       D)  $3^8$
2. The logarithmic form of  $64 = 2^6$  is ..... [   ]  
A)  $\log_6 64 = 2$               B)  $\log_2 64 = 6$               C)  $\log_4 64 = 2$               D)  $\log_3 64 = 6$
3.  $\log 15 =$  .....  
A)  $\log 1 + \log 5$               B)  $\log 10 + \log 5$               C)  $\log 3 + \log 5$               D)  $\log 3 \times \log 5$

### II. Answer all the questions.

3 × 2 = 6M

4. Find the LCM and HCF of the following integers by the Prime factorisation method.  
12, 15, 21

5. Expand  $\log \frac{343}{125}$

6. Evaluate  $\log_2 7.5$  in term of x and y if it is given  $x = \log_2 3$  and  $y = \log_2 5$

### III. Answer all the questions.

2 × 4 = 8M

7. Write  $2 \log 3 + 3 \log 5 - 5 \log 2$  as a single logarithm.
8. Show that  $3^n \times 4^m$  can not end with the digit 0 or 5 for any natural number.

### IV. Answer any one of the question.

1 × 8 = 8M

9. If  $x^2 + y^2 = 25xy$ , then prove that  $2 \log(x + y) = 3 \log 3 + \log x + \log y$

(Or)

if  $(2.3)^x = (0.23)^y = 1000$  then find the value of  $\frac{1}{x} - \frac{1}{y}$ .

# SLIP TEST-2

Time : 1 hr.

## CHAPTER-1: REALNUMBERS

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

3 × 1 = 3M

1.  $3 \times 7 \times 11 + 11$  is ..... [ ]

A) Prime number      B) Odd number      C) Composite number      D) None

2. The value of  $\log 2 + \log 5$  is ..... [ ]

A) 0      B) 1      C) 10      D) 7

3.  $\log 100$  rational or irrational? Justify your answer.

### II. Answer all the questions.

3 × 2 = 6M

4. Explain why  $7 \times 11 \times 13 + 13$  and  $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$  are composite numbers.

5. Find the value of  $2^{2+\log_2 3}$

6. Express the following in logarithm form.

i)  $3^5 = 243$

ii)  $2^{10} = 1024$

### III. Answer all the questions.

2 × 4 = 8M

7. Find x if  $2 \log 5 + \frac{1}{2} \log 9 - \log 3 = \log x$

8. Solve  $3^x = 5^{x-2}$

### IV. Answer any one of the question.

1 × 8 = 8M

9. If  $\log \left( \frac{x+y}{3} \right) = \frac{1}{2} (\log x + \log y)$  then find the value of  $\frac{x}{y} + \frac{y}{x}$

(or)

If  $2^{x+1} = 3^{1-x}$  then find the value of 'x'.

# SLIP TEST-3

Time : 1 hr.

## CHAPTER-2: SETS

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

3 × 1 = 3M

1.  $A = \{1, 2, 3, 4, 5\}$ ,  $B = \{1, 3, 5\}$  then  $A - B = \dots\dots\dots$
2. If A and B are disjoint sets then  $n(A \cap B) = \dots\dots\dots$
3. Write the set builder form of the set  $A = \left\{1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}\right\}$

### II. Answer all the questions.

3 × 2 = 6M

4. List the elements of the following sets.  
i)  $G = \{\text{all the factors of } 20\}$  ii)  $S = \{x : x \text{ is a letter in word LOYAL}\}$
5. Let  $A = \{2, 4, 6, 8\}$  and  $B = \{3, 4, 5, 7\}$   
Find  $A \cup B$  and  $A \cap B$
6. If  $A = \{2, 3, 4\}$ ,  $B = \{2, 3, 4, 5, 6\}$  then find  $A \cup B$ ,  $A \cap B$  what do you notice about the result.

### III. Answer all the questions.

2 × 4 = 8M

7. Match the roster form with set builder form.

A

B

- |                                 |  |
|---------------------------------|--|
| 1. $\{1, 2, 3, 6\}$             | a) $\{x : x \text{ is a prime and a divisor of } 6\}$            |
| 2. $\{2, 3\}$                   | b) $\{x : x \text{ is an odd natural number smaller than } 10\}$ |
| 3. $\{M, A, T, H, E, I, C, S\}$ | c) $\{x : x \text{ is a natural number and divisor of } 6\}$     |
| 4. $\{1, 3, 5, 7, 9\}$          | d) $\{x : x \text{ is a letter of the word MATHEMATICS}\}$       |
8. If  $A = \{0, 2, 4\}$  then find i)  $A \cap \phi$  ii)  $A \cup \phi$  iii)  $A \cap A$ .

What do you observe from the result.

### IV. Answer any one of the question.

1 × 8 = 8M

9. If  $A = \{x : x \text{ is natural number}\}$ ;  $B = \{x : x \text{ is an even natural number}\}$ ;  $C = \{x : x \text{ is an odd natural number}\}$ ;  $D = \{x : x \text{ is prime number}\}$   
Find  $A \cap B$ ,  $A \cap C$ ,  $A \cap D$ ,  $B \cap C$ ,  $B \cap D$ ,  $C \cap D$ .

(or)

Write all the subsets of the following sets.

- i)  $A = \{p, q, r\}$  ii)  $B = \{1, 4, 9, 16\}$

# SLIP TEST-4

Time : 1 hr.

## CHAPTER-2: SETS

Max. Marks : 25

**I. Answer all questions. Each question carries 1 mark. 3 × 1 = 3M**

1. If  $A = \{a, b, c, d\}$  How many subsets does the set 'A' have [   ]  
A) 5                                      B) 6                                      C) 16                                      D) 65
2. If  $A \subset B$  then  $A \cap B = \dots\dots\dots$  [   ]  
A) B                                      B) A                                      C)  $\phi$                                       D) None
3. If  $A = \{1, 2, 3, 4, 5\}$ ;  $B = \{2, 4, 6, 8\}$  then find  $n(A \cup B)$  ?

**II. Answer all the questions. 3 × 2 = 6M**

4. Which of the following sets are empty sets justify your answer.  
i)  $A = \{x : x^2 = 4 \text{ and } 3x = 9\}$   
ii) The set of all triangles in a plane having the sum of their angles less than  $180^\circ$ .
5. Consider the sets,  $\phi$ ,  $A = \{1, 3\}$ ,  $B = \{1, 5, 9\}$ ,  $C = \{1, 3, 5, 7, 9\}$  Insert the symbol  $\subset$  or  $\not\subset$  between each of the following pair of sets.  
i)  $\phi \dots B$                               ii)  $A \dots B$                               iii)  $A \dots C$                               iv)  $B \dots C$
6. If  $A = \{2, 4, 6, 8\}$  and  $B = \{3, 6, 9, 12, 15\}$ . Find  $A - B$  and  $B - A$ .

**III. Answer all the questions. 2 × 4 = 8M**

7. Write the following sets in the set-builder form.  
i)  $\{3, 6, 9, 12\}$                               ii)  $\{2, 4, 8, 16, 32\}$                               iii)  $\{5, 25, 125, 625\}$   
iv)  $\{1, 4, 9, 16, 25, \dots, 100\}$
8. If  $A = \{x/x \text{ is a prime number and } x < 20\}$ ;  $B = \{x : 2x + 1, x \in W \text{ and } x < 9\}$   
Then find i)  $A \cup B$                               ii)  $A \cap B$                               iii)  $A - B$                               iv)  $B - A$ .  
Express your observation from the result.

**IV. Answer any one of the question. 1 × 8 = 8M**

9.  $A = \{x : x \text{ is an even prime}\}$ ;                               $B = \{x : x \text{ is a natural number } < 12\}$   
 $C = \{x : x \text{ is a multiple of } 4 \leq 12\}$ ;                               $D = \{x : x \text{ factor of } 12\}$   
Find i)  $A \cup B$                               ii)  $C \cap D$                               iii)  $A \cap C$                               iv)  $A - D$   
(or)  
If  $A = \{3, 6, 9, 12, 15, 18, 21\}$ ,  $B = \{4, 8, 12, 16, 20\}$ ,  $C = \{2, 4, 6, 8, 10, 12, 14, 16\}$ ,  $D = \{5, 10, 15, 20\}$   
Find i)  $A - B$                               ii)  $A - D$                               iii)  $C - A$                               iv)  $B - D$

# SLIP TEST-5

Time : 1 hr.

## CHAPTER-3: POLYNOMIALS

Max. Marks : 25

**I. Answer all questions. Each question carries 1 mark.**

**3 × 1 = 3M**

1. Write the general form of  $n^{\text{th}}$  degree polynomial in one variable 'x'.

2.  $P(x) = x^2 - 5x - 6$  find the value of  $P(2)$  and  $P(-2)$

3. Which of the following is not a polynomial .....

[ ]

A)  $x^2 - 4$

B)  $\frac{1}{x-1}$

C)  $4z^2 + \frac{1}{7}$

D)  $x^2 - 2x + 3$

**II. Answer all the questions.**

**3 × 2 = 6M**

4. Check whether 3 and -2 are the zeros of the polynomial  $P(x) = x^2 - x - 6$

5. Which of the following statements are true and which are false. Justify your answer.

i) The degree of the polynomial  $\sqrt{2}x^2 - 3x + 1$  is  $\sqrt{2}$

ii) The coefficient of  $x^2$  in the polynomial  $P(x) = 3x^3 - 4x^2 + 5x + 7$  is '2'.

6. Find the zeroes of the polynomial  $P(x) = x^2 + 5x + 6$

**III. Answer all the questions.**

**2 × 4 = 8M**

7. Find the zeroes of the polynomial  $x^2 + 7x + 10$  and verify the relationship between zeroes and coefficients.

8. Find a quadratic polynomial whose zeroes are 2 and  $-\frac{1}{3}$  respectively.

**IV. Answer any one of the question.**

**1 × 8 = 8M**

9. Draw the graph of  $P(x) = x^2 - x - 12$  and find zeroes. Justify the answer.

(or)

Draw the graph of  $P(x) = x^2 - 4x + 5$  and find zeroes Justify the answer.

# SLIP TEST-6

Time : 1 hr.

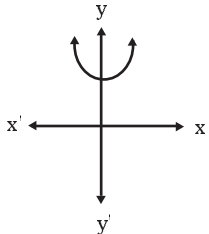
## CHAPTER-3: POLYNOMIALS

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

3 × 1 = 3M

1. Write one polynomial that has one zero value.

2.  No. of zeroes that the given graph has ..... [   ]

- A) 1                      B) 2                      C) 3                      D) No real zeroes

3.  $P(x) = ax^2 + bx + c$ . The graph of  $P(x)$  is .....

- A) Straight line              B) Parabola              C) Circle              D) Square

### II. Answer all the questions.

3 × 2 = 6M

4. If  $P(t) = t^3 - 1$ . Find the values of  $P(1)$ ,  $P(-1)$ ,  $P(0)$ ,  $P(-2)$ .

5. Find a quadratic polynomial the sum and product of whose zeroes are  $-3$  and  $2$ .

6. Find the quadratic polynomial whose roots are  $3 + \sqrt{3}$  and  $3 - \sqrt{3}$ .

### III. Answer all the questions.

2 × 4 = 8M

7. Find the zeroes of the polynomial  $3x^2 - x - 4$  and verify the relationship between zeroes and co-efficients.

8. Verify that  $3, -1, -\frac{1}{3}$  are the zeroes of the cubic polynomial  $P(x) = 3x^3 - 5x^2 - 11x - 3$

### IV. Answer any one of the question.

1 × 8 = 8M

9. Draw the graph of  $P(x) = x^2 - 6x + 9$  and find zeroes. Justify the answer.

(or)

Draw the graph of  $P(x) = x^2 - 1$ . Find zeroes. Justify the answer.

# SLIP TEST-7

Time : 1 hr.

## CHAPTER-4 & 5

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

3 × 1 = 3M

1. Which of the following is not a linear equation. [ ]
- A)  $5 + 4x = y + 3$       B)  $x + 2y = y + x$       C)  $3 - x = y^2 + 4$       D)  $x + y = 0$
2. The equation  $x - 4y = 5$  has ..... [ ]
- A) No solution      B) Unique solution
- C) Two solutions      D) Infinitely, many solution
3. Which of the following numbers is a solution for the equation  $2(x + 3) = 18$  [ ]
- A) 5      B) 6      C) 13      D) 21

### II. Answer all the questions.

3 × 2 = 6M

4. Define a linear equation in two variables.
5. Give any two examples of linear equation in two variables.
6. Siri bought 3 note books and 2 pens for Rs. 80 express this information in a linear equation.

### III. Answer all the questions.

2 × 4 = 8M

7. Check whether the following equation the quadratic or not.
- i)  $x^2 - 6x + 4 = 0$       ii)  $x^3 - 6x^2 + 2x - 1 = 0$       iii)  $x^2 + \frac{1}{x^2} = 2$
- iv)  $(2x + 1)(3x + 1) = (x - 1)(x - 2)$
8. The hypotenuse of a right angled triangle is 25 cm and the difference in lengths of the other two sides is 5 cm. Write a quadratic equation to find the length of the other sides.

### IV. Answer any one of the question.

1 × 8 = 8M

9. The area of rectangular plot is  $528 \text{ m}^2$ . The length of the plot is '1' more than twice its breadth. Find the length and breadth of the plot.

(or)

The product of two consecutive positive integers is 306. Find the integers.

# SLIP TEST-8

Time : 1 hr.

## CHAPTER-6: PROGRESSIONS

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

3 × 1 = 3M

1. If a, b, c are in A.P. then  $2b = \dots\dots\dots$  [ ]

- A)  $a - c$                       B)  $\frac{a+c}{2}$                       C)  $a + c$                       D)  $\frac{a-c}{2}$

2. In 2, 4, 6, 8, 10, ..... of A.P common difference is ..... [ ]

- A) 2                      B) 4                      C) 0                      D) 6

3. If the  $n^{\text{th}}$  term in A.P is  $2n + 5$  then the first term is ..... [ ]

- A) 3                      B) 7                      C) 9                      D) 11

### II. Answer all the questions.

3 × 2 = 6M

4. Is 2, 5, 7, 10, 12, 15, ..... an Arithmetic progression and why?

5. Write any two Arithmetic progressions.

6. Is 2, 4, 8, 16 ..... are in A.P. Justify your answer.

### III. Answer all the questions.

2 × 4 = 8M

7. Write two examples of each.

- i) Finite A.P with negative common difference  
ii) Infinite AP with positive common difference.

8. Which of the following are in A.P. Justify the answer.

- i) 100, 70, 40, 10, .....    ii) 2, 3, 5, 7, 8, 10, 15, .....

### IV. Answer any one of the question.

1 × 8 = 8M

9. Find the first term and common difference of the following progressions.

- i)  $-3, -2, -1, 0, \dots\dots\dots$     ii)  $3, 3, 3, 3, \dots\dots\dots$     iii)  $-1.0, -1.5, -2.0, -2.5$   
iv)  $1, 3, 5, 7, \dots\dots\dots$

(or)

Define AP and give four examples and also write its general form.



# SLIP TEST-9

Time : 1 hr.

## CHAPTER-7: CO-ORDINATE GEOMETRY

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

3 × 1 = 3M

1. Which of the following point lies in  $Q_2$ . [ ]

- A) (3, -2)                      B) (-3, 4)                      C) (-3, -2)                      D) (3, 4)

2. Find the mid point of the line segment joining the points (3, 0) and (-1, 4).

3. Distance of a point P (x, y) from the origin is ..... [ ]

- A)  $\sqrt{x^2 + y^2}$                       B)  $\sqrt{x^2 - y^2}$                       C)  $|x_2 - x_1|$                       D)  $|y_2 - y_1|$

### II. Answer all the questions.

3 × 2 = 6M

4. What is the distance between (0, -3), (0, -8) and Justify the distance between two points on y-axis is  $|y_2 - y_1|$

5. Find the distance between the points P (7, 8) and Q (-2, 3)

6. Find the centroid of the triangle whose vertices are (3, -5), (-7, 4) and (10, -2)

### III. Answer all the questions.

2 × 4 = 8M

7. Verify that the points (1, 5), (2, 3) and (-2, -1) are collinear or not.

8. Prove that the points (-7, -3), (5, 10), (15, 8) and (3, -5) taken in order are the vertices of a parallelogram.

### IV. Answer any one of the question.

1 × 8 = 8M

9. Find the coordinate of the point which divides the line joining the points (-1, 7) and (4, -3) in the ratio 2 : 3.

(or)

If A and B are (-2, -2) and (2, -4) respectively. Find the coordinates of P such that  $AP = \frac{3}{7} AB$  and P lies on the segment AB.

# SLIP TEST-10

Time : 1 hr.

## CHAPTER-7: CO-ORDINATE GEOMETRY

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

3 × 1 = 3M

1. The quadrant in which (-2, -3) point lies ..... [ ]

- A) Q<sub>1</sub>                      B) Q<sub>2</sub>                      C) Q<sub>3</sub>                      D) Q<sub>4</sub>

2. The point which lies on the x-axis are ..... [ ]

- A) (3, 0)                      B) (-3, 0)                      C) Both A and B                      D) None

3. Which of the following is section formula ..... [ ]

A)  $\left( \frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right)$                       B)  $\left( \frac{m_1x_2 + m_2x_1}{m_1 + m_2}, \frac{m_1y_2 + m_2y_1}{m_1 + m_2} \right)$

C)  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$                       D) None

### II. Answer all the questions.

3 × 2 = 6M

4. Find the mid point of the line joining the points (2, 7) and (12, - 7).

5. If the distance between two points (x, 7) and (1, 15) is '10' find the value of 'x'.

6. Find the radius of the circle whose centre is (3,2) and passes through (-5, 6).

### III. Answer all the questions.

2 × 4 = 8M

7. Show that the points (-4, - 7), (-1, 2), (8, 5) and (5, - 4) taken in order are the vertices of a rhombus and find its area.

8. Can you draw a triangle with vertices (1, 5), (5, 8) and (13, 14) ? Give reason.

### IV. Answer any one of the question.

1 × 8 = 8M

9. In what ratio does the point (-4, 6), divide the line segment joining the points A (-6, 10) and B (3, -8) ?

(or)

If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices of parallelogram taken in order. Find x and y ?

# SLIP TEST-11

Time : 1 hr.

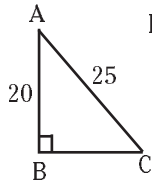
## SIMILAR TRIANGLES

Max. Marks : 25

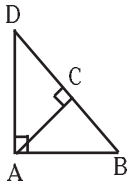
**I. Answer all questions. Each question carries 1 mark.**

**3 × 1 = 3M**

1. In  $\triangle ABC$ ,  $BC = \dots\dots\dots$



2. In  $\triangle ABC$ ,  $AB^2 = \dots\dots\dots$



3. In  $\triangle ABC$ ,  $BC^2 + AB^2 = AC^2$  then ..... is right angle.

**II. Answer all the questions.**

**3 × 2 = 6M**

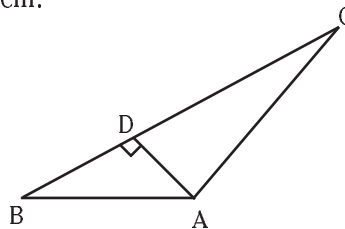
4. A ladder 25 m long reaches a window of building 20 m above the ground determine the distance of the foot of the ladder from the building.
5. ABC is an isosceles triangle right angled at 'C'. Prove that  $AB^2 = 2AC^2$
6. Write converse of pythagorous theorem.

**III. Answer all the questions.**

**2 × 4 = 8M**

7. In the figure  $AD \perp BC$

Prove that  $AB^2 + CD^2 = BD^2 + AC^2$



8. Prove that the sum of the squares of the sides of rhombus is equal to the sum of the squares of its diagonals.

**IV. Answer any one of the question.**

**1 × 8 = 8M**

9. State and prove 'Baudhayan' theorem.

(or)

ABC is a right triangle, right angle at 'C'. Let  $BC = a$ ,  $CA = b$ ,  $AB = c$  and 'P' be the length of

perpendicular from 'C' on AB. Prove that i)  $pc = ab$  ii)  $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$

# SLIP TEST-12

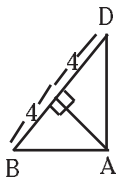
Time : 1 hr.

## SIMILAR TRIANGLES

Max. Marks : 25

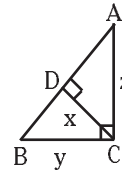
**I. Answer all questions. Each question carries 1 mark.**

**3 × 1 = 3M**

1.  In  $\triangle ABC$ ,  $AC^2 = \dots\dots\dots$

2. In  $\triangle ABC$ ,  $a^2 + b^2 = c^2$  then right angle is .....

3. In  $\triangle ABC$ ,  $\angle C = 90^\circ$  and  $CD \perp AB$  then  $\frac{1}{x^2} = \dots\dots\dots$



**II. Answer all the questions.**

**3 × 2 = 6M**

4. Two poles of heights 6 m and 11 m stand on a plane ground. If the distance between the feet of the poles is 12 m. Find the distance between their tops.
5. PQR is a triangle right angle at 'P' and M is a point on QR. Such that  $PM \perp QR$ .  
Show that  $PM^2 = QM \cdot MR$
6. A ladder 15m long reaches a window which is 9 m above the ground on one side of a street. Keeping its foot at the same point, the ladder is turned to other side of the street to reach a window 12 m high. Find the width of the street.

**III. Answer all the questions.**

**2 × 4 = 8M**

7. 'O' is any point in side a rectangle ABCD then prove that  $OB^2 + OD^2 = OA^2 + OC^2$
8. 'O' is any point in the interior of a triangle ABC.  
 $OD \perp BC$ ,  $OE \perp AC$ , and  $OF \perp AB$  show that  $OA^2 + OB^2 + OC^2 - OD^2 - OE^2 - OF^2 = AF^2 + BD^2 + CE^2$

**IV. Answer any one of the question.**

**1 × 8 = 8M**

9. Construct a similar triangle to the given  $\triangle ABC$ , with its sides equal to  $\frac{5}{3}$  of the corresponding sides of the triangle ABC.

(or)

State and prove converse of Pythagoras theorem.

# SLIP TEST-13

Time : 1 hr.

## SECANTS AND TANGENTS

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

$3 \times 1 = 3M$

1. We can draw ..... tangents to a given circle.
2. The angle between a tangent to a circle and the radius drawn at the point of contact is [    ]  
A)  $60^\circ$                       B)  $30^\circ$                       C)  $45^\circ$                       D)  $90^\circ$
3. If AP and AQ are the two tangents to a circle with centre 'O'. So that  $\angle POQ = 110^\circ$  then,  $\angle PAQ = \dots\dots\dots$  [    ]  
A)  $60^\circ$                       B)  $70^\circ$                       C)  $80^\circ$                       D)  $90^\circ$

### II. Answer all the questions.

$3 \times 2 = 6M$

4. Construct a tangent to a circle of a given point when the centre of the circle is known.
5. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre 'O' at a point Q so that OQ = 13 cm. Find the length of PQ.
6. Show that the lengths of tangents drawn from an external point to a circle are equal.

### III. Answer all the questions.

$2 \times 4 = 8M$

7. Show that if a circle touches all the four sides of a quadrilateral ABCD at points P, Q, R, S then  $AB + CD = BC + DA$ .
8. Prove that the parallelogram circumscribing a circle is rhombus.

### IV. Answer any one of the question.

$1 \times 8 = 8M$

9. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle  $60^\circ$ .

(or)

Draw a circle of radius 6 cm. From a point 10 cm away from its centre construct the pair of tangents to the circle and measure their lengths. Verify by using Pythagoras theorem.

# SLIP TEST-14

Time : 1 hr.

## SECANTS AND TANGENTS

Max. Marks : 25

### I. Answer all questions. Each question carries 1 mark.

$3 \times 1 = 3M$

- From a point Q the length of the tangent to a circle is 24 cm. and the distance of Q from the centre is 25 cm. Then radius is .....  
A) 7 cm                      B) 12 cm                      C) 15 cm                      D) 24.5 cm
- If tangents PA and PB from a point P to a circle with centre 'O' are inclined to each other at angle of  $80^\circ$  then  $\angle POA = \dots\dots\dots$  [   ]  
A)  $50^\circ$                       B)  $60^\circ$                       C)  $70^\circ$                       D)  $80^\circ$
- If there is only one tangent can be drawn from a point 'P' to a circle then 'P' lies .....

### II. Answer all the questions.

$3 \times 2 = 6M$

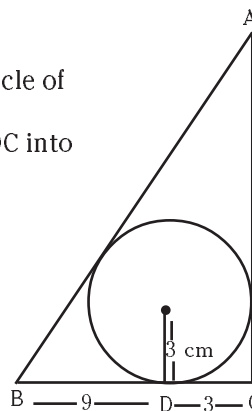
- Calculate the length of tangent from a point 15 cm away from the centre of a circle of radius 9 cm.
- Prove that the tangents to a circle at the end points of a diameter are parallel.
- Two concentric circles are radii 5 cm and 3 cm. are drawn. Find the length of the chord of the larger circle which touches the smaller circle.

### III. Answer all the questions.

$2 \times 4 = 8M$

- If two tangents AP and AQ are drawn to a circle with centre 'O' from an external point 'A' then show that  $\angle PAQ = 2 \angle OPQ = 2 \angle OQP$
- A triangle ABC is drawn to circumscribe a circle of radius 3 cm. Such that the segments BD and DC into which BC is divided by the point of contact 'D' are of length 9 cm. and 3 cm respectively.

Find the sides AB and AC.



### IV. Answer any one of the question.

$1 \times 8 = 8M$

- Construct a tangent to a circle of radius 4 cm from a point on the concentric circle of radius 6 cm and measure its length. (or)

Draw a circle with the help of a bangle. Take a point outside the circle. Construct the pair of tangents from this point to the circle measure them.

# SLIP TEST-15

Time : 1 hr.

**MENSURATION/TRIGONOMETRY** Max. Marks : 25

**I. Answer all questions. Each question carries 1 mark. 3 × 1 = 3M**

1. What we need to find the number of bags inside the lorry .....
2. The ratio of T.S.A and C.S.A of a cube is .....
3. Volume of Right Pyramid is .....

**II. Answer all the questions. 3 × 2 = 6M**

4. Write any two examples for combination of 'SHAPES'
5. A cylinder and cone have bases of equal radii and equal heights. Find the ratio of their volumes.
6. Write the T.S.A of the following.  
i) Cuboid ii) Regular circular cylinder.

**III. Answer all the questions. 2 × 4 = 8M**

7. In a triangle PQR,  $\angle Q = 90^\circ$ ,  $P = x$ ,  $\angle PQ = 7$  cm and  $QR = 24$  cm then find  $\sin 'x'$  and  $\cos 'x'$ .
8. The value of  $\sin A$  and  $\cos A$  is always less than '1' why ?

**IV. Answer any one of the question. 1 × 8 = 8M**

9. i) If  $3 \tan A = 4$  then find  $\sin A$  and  $\cos A$ .  
ii) In  $\Delta PQR$ ,  $\angle Q = 90^\circ$ ,  $PQ = 3$  cm and  $PR = 6$  cm . Determine  $\angle QPR$  and  $\angle PRQ$ .

(Or)

In  $\Delta ABC$  and  $\Delta xyz$ , If  $\angle A$  and  $\angle X$  are acute angles. Such that  $\cos A = \cos X$  then

show that  $\angle A = \angle X$ .

# SLIP TEST-16

Time : 1 hr.

## TRIGONOMETRY

Max. Marks : 25

**I. Answer all questions. Each question carries 1 mark.**

**3 × 1 = 3M**

1.  $\frac{2 \tan^2 30^\circ}{1 + \tan^2 45^\circ} =$  [   ]

- A)  $\sin 60^\circ$                       B)  $\cos 60^\circ$                       C)  $\tan 30^\circ$                       D)  $\sin 30^\circ$

2.  $\frac{1 - \tan^2 45^\circ}{1 + \tan^2 45^\circ} =$

- A)  $\tan 90^\circ$                       B) 1                                      C)  $\sin 45^\circ$                       D) 0

3.  $\frac{\tan 36^\circ}{\cot 54^\circ} = \dots\dots\dots$

**II. Answer all the questions.**

**3 × 2 = 6M**

4. Is it right to say that  $\sin(A + B) = \sin A + \sin B$ . Justify your answer.

5. Show that  $\cos 36^\circ \cdot \cos 54^\circ - \sin 36^\circ \cdot \sin 54^\circ = 0$

6. If  $\sin A = \frac{15}{17}$  then find  $\cos A$ .

**III. Answer all the questions.**

**2 × 4 = 8M**

7. A chord of a circle of radius 6 cm is making an angle  $60^\circ$  at the centre. Find the length of the chord.

8. If  $\tan 2A = \cot(A - 18^\circ)$ . Where  $2A$  is an acute angle. Find the value of  $A$ .

**IV. Answer any one of the question.**

**1 × 8 = 8M**

9. If  $A, B, C$  are interior angles of  $\triangle ABC$  then show that  $\sin \frac{B+C}{2} = \cos \frac{A}{2}$

(Or)

Prove that  $(\sin A + \operatorname{cosec} A)^2 + (\cos A + \operatorname{se} A)^2 = 7 + \tan^2 A + \cot^2 A$



# SLIP TEST-17

Time : 1 hr.

## TRIGONOMETRY

Max. Marks : 25

**I. Answer all questions. Each question carries 1 mark.**

**3 × 1 = 3M**

1. If  $\sec \theta + \tan \theta = p$  then  $\sec \theta - \tan \theta = \dots\dots\dots$
2. If  $\sin A = \cos B$  then  $A + B = \dots\dots\dots$
3. The first use of the idea of sine by  $\dots\dots\dots$

**II. Answer all the questions.**

**3 × 2 = 6M**

4.  $\sin x = \frac{4}{3}$  does exist for some value of angle 'x' ?
5.  $\sec 0^\circ = 1$ , why ?
6. In  $\Delta XYZ$ ,  $\angle Y = 90^\circ$ ,  $YZ = x$  and  $XZ = 2x$  then determine  $\angle YXZ$  and  $\angle YZX$ .

**III. Answer all the questions.**

**2 × 4 = 8M**

7. Express  $\sin 81^\circ + \tan 81^\circ$  in terms of trigonometric ratios of angles between  $0^\circ$  and  $45^\circ$ .

8. Prove that  $\sqrt{\frac{1+\cos\theta}{1-\cos\theta}} = \operatorname{cosec}\theta + \cot\theta$

**IV. Answer any one of the question.**

**1 × 8 = 8M**

9. If  $\operatorname{cosec}\theta \cot\theta = K$  then prove that  $\cos\theta = \frac{K^2 - 1}{K^2 + 1}$

(Or)

For which value of  $\theta$   $\frac{\cos\theta}{1-\sin\theta} + \frac{\cos\theta}{1+\sin\theta} = 4$  is true.

# SLIP TEST-18

Time : 1 hr.

## TRIGONOMETRY

Max. Marks : 25

**I. Answer all questions. Each question carries 1 mark. 3 × 1 = 3M**

1. Mode of 'n' natural numbers is .....
2. Find the mean of first '5' prime numbers.
3. Find the median of - 1, 3, 5, 2, 0, 7, 'OBSERVATIONS'

**II. Answer all the questions. 3 × 2 = 6M**

4. Find the mean of the data.

Marks $x_i$	10	20	30	0	50	60	70
No. of students $f_i$	1	1	3	4	2	4	5

5. Write the formula to find mean of the data in Assumed mean method and Explain the terms.

6. Mode of  $x, \frac{x}{3}, \frac{x}{3}, \frac{x}{3}, \frac{x}{5}, \frac{x}{2}, \frac{x}{2}$  is '3' then find 'x'.

**III. Answer all the questions. 2 × 4 = 8M**

7. Find the median of the data.

Marks	20	29	28	33	42	38	43	25
No. of students	6	28	24	15	2	4	1	20

8. Find the mode of the following data.

Class Interval	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55
Frequency	3	8	9	10	3	0	0	2

**IV. Answer any one of the question. 1 × 8 = 8M**

9. A survey regarding the heights of 51 girls of X class was constructed and data was shown in the table find median.

Height	less than 140	less than 145	less than 150	less than 155	less than 160	less than 165
No. of girls	4	11	29	40	46	51

(Or)

Find the mean by a suitable method.

Class Interval	0-2	2-4	4-6	6-8	8-10	10-12	12-14
Frequency	1	2	1	5	6	2	3

# SLIP TEST-19

Time : 1 hr.

## PROBABILITY

Max. Marks : 25

**I. Answer all questions. Each question carries 1 mark.**

**3 × 1 = 3M**

1. Which of the following cannot be the probability of an event. [ ]
- A) 2.3                      B) -1.5                      C) 15.1                      D) 0.7
- i) A and C                      ii) A and B                      iii) B and C                      iv) A, B and C
2. The book on games of chance was written by .....
3. The sample space of one toss of a coin is .....

**II. Answer all the questions.**

**3 × 2 = 6M**

4. Is getting a head complementary to getting a tail. Give reason ?
5. Can  $\frac{7}{2}$  be the probability of an event ? Explain.
6. What is the probability of for drawing out a red king from a deck of cards.

**III. Answer all the questions.**

**2 × 4 = 8M**

7. If  $P(E) = 0.05$  what is the probability of 'Not E'.
8. Find the probability of getting head when a coin is tossed once. Also find the probability of getting tail.

**IV. Answer any one of the question.**

**1 × 8 = 8M**

9. You have a single deck of well shuffled cards. Then find the probability of the follows.
- i) The card drawn will be a queen                      ii) A face card                      iii) A spade
- iv) Not a face card                      v) Face card of spade                      vi) A diamond card

(Or)

A die is thrown once. Find the probability of getting.

- i) Prime number                      ii) number lying between 2 and 6
- iii) A composite number                      iv) An odd number.

# SLIP TEST-20

## APPLICATIONS OF TRIGONOMETRY/ STATISTICS/PROBABILITY

Time : 1 hr.

Max. Marks : 25

**I. Answer all questions. Each question carries 1 mark. 3 × 1 = 3M**

1. The sum of the probabilities of all the elementary events of an experiment is .....
2. Write all the elementary events in tossing two coins.
3. The angle between the line of sight and horizontal line is called .....

**II. Answer all the questions. 3 × 2 = 6M**

4. Mourya is flying a kite at an angle of elevation ' $\alpha$ ' and the length of thread from his head to the kite is ' $l$ '. Draw diagram for this data.
5. Define impossible and certain events ?
6. Write the mode formula and Explain the terms.

**III. Answer all the questions. 2 × 4 = 8M**

7. A person observing two banks of a river at angles of depression  $\theta_1$  and  $\theta_2$  ( $\theta_1 < \theta_2$ ) from the top of a tree of height ' $h$ ' which is at a side of the river. The width of the river is ' $d$ '. Draw diagram for this data.
8. A large balloon has been tied with a rope and it is floating in the air. Ajay has observed the balloon from the top of a building at an angle of elevation of  $\theta_1$  and foot of the rope at an angle of depression  $\theta_2$ , The height of the building is ' $h$ ' feet. Draw the diagram.

**IV. Answer any one of the question. 1 × 8 = 8M**

9. 'SUDHEER' takes out all the hearts from the deck. What is the probability of

- i) Picking out an ace      ii) A diamond      iii) not a heart  
iv) Ace of hearts      v) A queen      vi) King of red colour

(Or)

Class Interval	11-13	13-15	15-17	17-19	19-21	21-23	23-25
Frequency	7	6	9	13	f	5	4

If mean of the above data is '18' then find 'f'.