

**St. Mary's Convent Inter College, Prayagraj****First Terminal Examination 2025-26****Subject - Mathematics****Time :3hrs.****Class - 9****M.M. : 80****Name :****Roll No.****Date :**Candidates are allowed an additional **15 minutes** for **only** reading the paper.They must **Not** start writing during this time.

1. Attempt all questions from Section A and any four questions from Section B.
2. All working, including rough work, must be clearly shown, and must be done on the same sheet as the rest of the answer.
3. Omission of essential working will result in loss of marks.
4. The intended marks for questions or parts of questions are given in brackets []

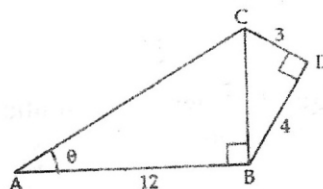
SECTION A – [40 Marks]**(Attempt all questions from this Section)****Question 1**

Choose the correct answers to the questions from the given options.

[15]

(Do not copy the questions, write the correct answers only.)

- (i) The sum of two irrational numbers is
(a) an irrational number (b) a rational number
(c) an integer (d) may or may not be irrational
- (ii) On rationalization the denominator of $\frac{1}{\sqrt{5}-3}$, we get
(a) $\frac{\sqrt{3}+5}{4}$ (b) $-\frac{\sqrt{3}+5}{4}$ (c) $-\frac{\sqrt{5}+3}{4}$ (d) $\frac{5+\sqrt{3}}{4}$
- (iii) The marks obtained by 17 students in a mathematics test (out of 100) are given below:
91, 82, 100, 100, 96, 65, 82, 76, 79, 90, 46, 64, 72, 66, 68, 48, 49
The range of the data is
(a) 46 (b) 54 (c) 90 (d) 100
- (iv) The class marks of a frequency distribution are given as follows:
15, 20, 25, ...
The class corresponding to the class mark 20 is
(a) 12.5 – 17.5 (b) 17.5 – 22.5
(c) 18.5 – 21.5 (d) 19.5 – 20.5
- (v) The mean of five numbers is 30. If one number is excluded, their mean becomes 28. The excluded number is
(a) 28 (b) 30 (c) 35 (d) 38
- (vi) In the adjoining figure, the value of $\cos \theta$ is
(a) $\frac{12}{13}$ (b) $\frac{13}{12}$ (c) $\frac{5}{12}$ (d) $\frac{5}{13}$



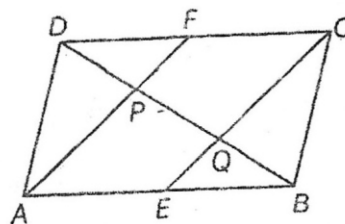
- (vii) If $\frac{x}{y} + \frac{y}{x} = 1$, then $x^3 + y^3$ is
(a) 1 (b) $2y^3$ (c) $-2y^3$ (d) 0
- (viii) Find the value of x , if $\tan (2x + 34^\circ) = 1$
(a) $6\frac{1}{2}$ (b) $5\frac{1}{2}$ (c) $7\frac{1}{3}$ (d) $6\frac{1}{3}$
- (ix) The three angles of a triangle are $a + 15^\circ$, $2a - 20^\circ$ and $a - 15^\circ$. The angles are
(a) 65° , 70° and 45° (b) 65° , 80° and 35°
(c) 45° , 100° and 35° (d) 65° , 60° and 55°



- (x) If $\triangle PQR \cong \triangle ABC$ and given $PR = 6$ cm, $AC = 6$ cm and $BC = 3$ cm, then the value of QR is
 (a) 3 cm (b) 4 cm (c) 5 cm (d) 6 cm
- (xi) D and E are mid-points of the sides AB and AC of $\triangle ABC$ and O is any point on the side BC. O is joined to A. If P and Q are mid-points of OB and OC respectively, then DEQP is
 (a) a square (b) a rectangle (c) a rhombus (d) a parallelogram
- (xii) Determine which of the following is a right angled triangle.
 (a) 7 cm, 24 cm, 25 cm (b) 50 cm, 80 cm, 100 cm (c) 8 cm, 40 cm, 41 cm (d) 3 cm, 5 cm, 6 cm
- (xiii) If $\tan A = \frac{3}{4}$ then $\sin A \cos A$ is
 (a) $\frac{24}{25}$ (b) $\frac{12}{25}$ (c) $\frac{5}{6}$ (d) $\frac{6}{5}$
- (xiv) The value of $(\sin 45^\circ + \cos 45^\circ)$ is
 (a) $\frac{1}{\sqrt{2}}$ (b) $\sqrt{2}$ (c) 1 (d) $\frac{\sqrt{3}}{2}$
- (xv) Assertion(A) : If $x - \frac{1}{x} = 3$, then $x^2 + \frac{1}{x^2} = 11$
 Reason(R) : $(a - b)^2 = a^2 + b^2 - 2ab$
 (a) (A) is true, (R) is false.
 (b) (A) is false, (R) is true.
 (c) Both (A) and (R) are true, and (R) is the correct reason for (A).
 (d) Both (A) and (R) are true, and (R) is the incorrect reason for (A).

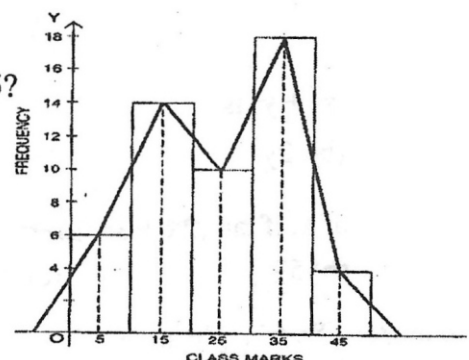
Question 2

- (a) Rationalise the following : $\frac{1}{3 - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - 2}$ [4]
- (b) In an examination, the mean of marks scored by a class of 40 students was calculated as 72.5. Later on, it was detected that the marks of one student was wrongly copied as 48 instead of 84. Find the correct mean. [4]
- (c) In the given figure, ABCD is a parallelogram and E, F are the mid-points of the sides AB, CD respectively. Show that the line segments AF and EC trisect the diagonal BD. [4]



Question 3

- (a) If $a^2 - 4a - 1 = 0$ and $a \neq 0$, then find the values of
 (i) $a - \frac{1}{a}$ (ii) $a + \frac{1}{a}$ [4]
- (b) Factorise $8(x + y)^3 - 27(x - y)^3$. [4]
- (c) The histogram and the frequency polygon of a frequency distribution is given below: [5]
 Answer the following about the frequency distribution:
 (i) What is the class size of each class?
 (ii) What is the frequency of the class whose class mark is 25?
 (iii) What is the class whose class mark is 15?
 (iv) What is the class whose frequency is 18?
 (v) Construct the frequency table for the given distribution.

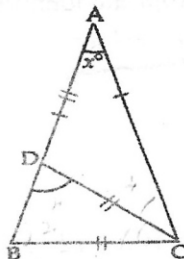


SECTION B [40 Marks]

(Attempt any four questions.)

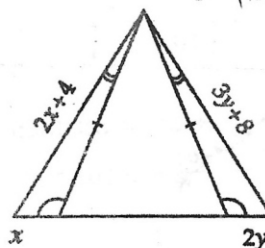
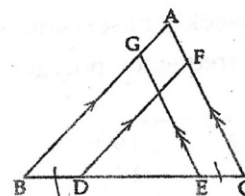
Question 4

- Factorize: $(x^2 - 2x)^2 - 23(x^2 - 2x) + 120$. [3]
- Evaluate: $\frac{3 \sin 3A + 2 \cos (5A + 10^\circ)}{\sqrt{3} \tan 3A - \operatorname{cosec} (5A - 20^\circ)}$, when $A = 10^\circ$. [3]
- In $\triangle ABC$, $AB = AC$ and D is a point on AB such that $AD = DC = BC$. Find $\angle BAC$ [4]



Question 5

- In the given figure, $BA \parallel DF$ and $CA \parallel EG$ and $BD = EC$. Prove that $BG = DF$. [3]
- Factorize: $a^2(b + c) - (b + c)^3$ [3]
- Find the value of x and y in the given figure. [4]



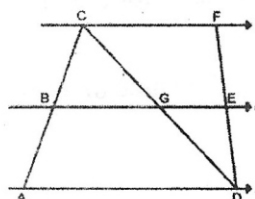
Question 6

- A ladder is placed in such a way that its foot is at a distance of 5m from the wall and its top reaches a window 12m above the ground. Determine the length of the ladder. [3]
- If $a = 1$, $b = -2$ and $c = -3$, find the value of: $\frac{a^3 + b^3 + c^3 - 3abc}{ab + bc + ca - (a^2 + b^2 + c^2)}$ [3]
- Given: $5 \cos A - 12 \sin A = 0$, find the value of: $\frac{\sin A + \cos A}{2 \cos A - \sin A}$. [4]

Question 7

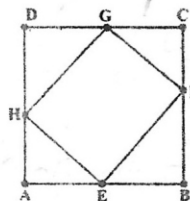
- If A , B and C are the interior angles of a triangle ABC , show that: $\sin \frac{B+C}{2} = \cos \frac{A}{2}$ [3]
- In the following figure, straight lines l , m and n are parallel to each other and G is the mid-point of CD . Find : [3]

- BG , if $AD = 11$ cm
- CF , if $GE = 5.6$ cm
- AB , if $BC = 4.8$ cm



- iii. In the given figure, ABCD is a square of side 10 cm. If $AE = FC = CG = HA = 4$ cm, [4]

- (a) Prove that EFGH is a rectangle.
(b) Find the area and perimeter of EFGH.



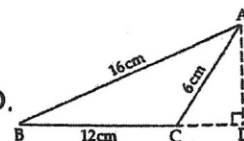
Question 8

- i. Evaluate: $(1979^2 - 21^2)$ using the appropriate identity. [3]

- ii. If $\sin 3x = 1$ and $0^\circ \leq 3x \leq 90^\circ$, find the values of: [3]

- (a) $\sin x$
(b) $\cos 2x$
(c) $\tan^2 x - \sec^2 x$

- iii. In the given figure, $\angle D = 90^\circ$, $AB = 16$ cm, $BC = 12$ and $CA = 6$ cm. Find CD. [4]



Question 9

- i. In a city, the weekly observations made in a study on the cost of living index are given in the following table. Draw a frequency polygon for the data given below: [3]

Cost of living index	140-150	150-160	160-170	170-180	180-190	190-200
Number of weeks	5	10	20	9	6	2

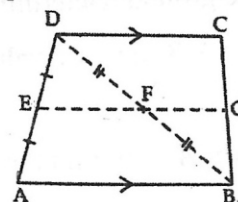
- ii. If $x + y - z = 4$ and $x^2 + y^2 + z^2 = 38$, then find the value of $xy - yz - zx$. [3]

- iii. Simplify: $\frac{\cos \theta}{\sin (90^\circ - \theta)} + \frac{\cos (90^\circ - \theta)}{\sec (90^\circ - \theta)} - 3 \tan^2 30^\circ$ [4]

Question 10

- i. In the quadrilateral given below, $AB \parallel DC$. E and F are mid points of AD and BD respectively. [3]
Prove that:

- (a) G is the mid-point of BC
(b) $EG = \frac{1}{2}(AB + DC)$
(c) Calculate the length of AB if $EF = 3.6$ cm.



- ii. The maximum temperatures (in degree Celsius) for Prayagraj for the month of April, 2025, as reported by the meteorological department, are given below: [3]

27.4, 28.3, 23.9, 23.6, 25.4, 27.5, 28.1, 28.4, 30.5, 29.7, 30.6, 31.7, 32.2, 32.6, 33.4, 35.7, 36.1, 37.2, 38.4, 40.1, 40.2, 40.5, 41.1, 42.0, 42.1, 42.3, 42.4, 42.9, 43.1, 43.2

Construct a frequency distribution table for the given data.

- iii. If $x = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $y = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, Find the value of $x^2 + y^2 + xy$. [4]

**“Your first
experience
with
programming
shapes how
you see it
forever”**

Right teacher can make coding fun, clear, and exciting, else it becomes confusing and frustrating.

That's why we focus on making sure beginners get the right guidance from the start so they don't lose interest, they gain confidence.

Online videos are good for learning syntax but they usually skip the harder parts of programming logic in each topic.

Why? Because difficult concepts can lead to negative comments and fewer views. But real learning happens when those tricky topics are explained clearly and patiently. That's what we focus on teaching what matters, not just what's easy to teach.

**Learn your first programming
language only at**



I want to join



Location on map

8-D, Kutchery Road
Ph: **9415368884**

