SHRI GULABRAO ESHWARA KHANDVE EDUCATIONAL FOUNDATION,

JAGADGURU INTERNATIONAL SCHOOL, LOHEGAON,PUNE

TERM - I (2025-26)

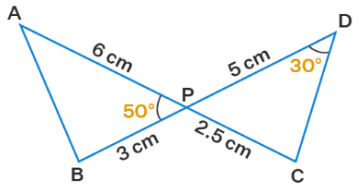
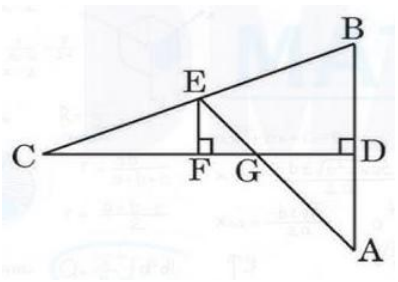
Class: X A **Date: 20/08/2025**
Subject: Math (041) **Total Marks: 80**
Roll No: **Time: 3 hrs**

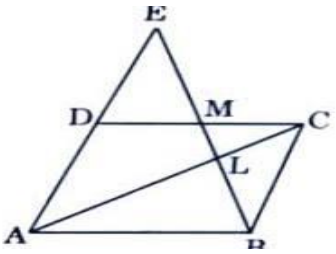
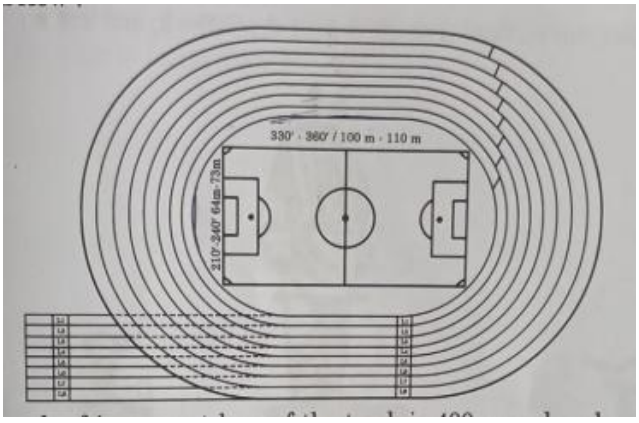
SET B

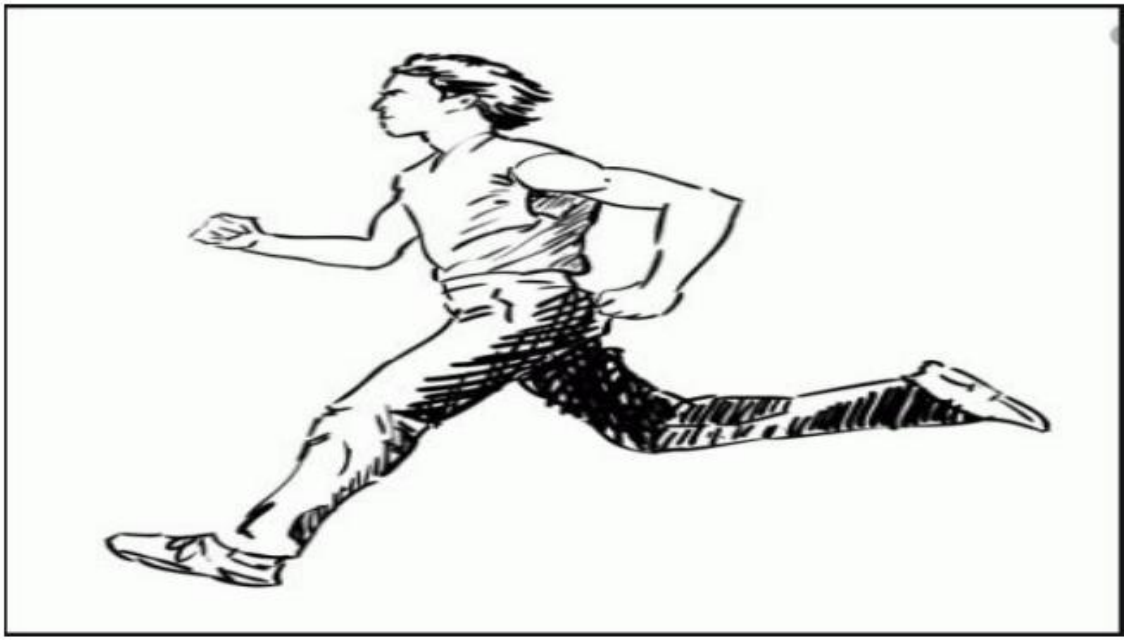
General Instructions :

1. *This Question paper contains five sections A , B , C , D , E*
2. *Section A has 18 MCQs and 02 Assertion – Reason based questions of 1 mark each.*
3. *Section B has 5 Very Short Answer (VSA) type questions of 2 marks each.*
4. *Section C has 6 Short Answer (SA) type questions of 3 marks each.*
5. *Section D has 4 Long Answer (LA) type questions of 5 marks each.*
6. *Section E has 3 Case study type questions of 4 marks each with sub parts.*
7. *All questions are compulsory. However, an internal choice in 2 questions of 5 marks. 2 Q's of 3 marks and 2 Q's of 2 marks has been provided. An internal choice has been provide in the 2 marks Q's of Section E.*

SR.NO	QUESTIONS	MARKS
	SECTION A	
1.	The sum of the exponents of prime factors in a prime factorization of 196 is (a) 3 (b) 4 (c) 5 (d) 2	1
2.	The largest number which divides 70 and 125 leaving the remainders 5 and 8 respectively is (a) 13 (b) 65 (c) 875 (d) 1750	1
3.	The sum of the zeros of the polynomial $P(x) = 5x - 7x^2 + 3$ is (a) -7/5 (b) 7/5 (c) 5/7 (d) -5/7	1
4.	The zeroes of the polynomial $x^2 + kx + k$, k is not equal to zero (a) cannot be positive (b) cannot be negative (c) are always equal (d) are always unequal	1
5.	The pair of equations $ax + 2y = 9$ and $3x + by = 18$ represents parallel line where a,b are integers if (a) $a = b$ (b) $3a = 2b$ (c) $2a = 3b$ (d) $ab = 6$	1
6.	Gunjan has only ₹1 and ₹2 coins with her if the total number of coin that she has is 50 and the amount of money with her is ₹75 then the number of ₹1 and ₹2 coin are respectively (a) 25 & 25 (b) 15 & 35 (c) 35 & 15 (d) 35 & 20	1
7.	Consider the equation $px^2 + qx + r = 0$. Which condition are sufficient to conclude that the equation has real roots? (a) $p<0, q>0$ (b) $p>0, q<0$ (c) $p>0 , r > 0$ (d) $p . 0 , r < 0$	1
8.	If $x = 0.3$ is a root of the equation $x^2 - 0.9k$ equals to zero then k is equal to (a) 1 (b) 10 (c) 0.1 (d) 100	1
9.	If a, b, c form and AP with common difference d, then the value of $a - 2b - c$ is equal to (a) $2a + 4d$ (b) 0 (c) $-2a - 4d$ (d) $-2a - 3d$	1
10.	n^{th} term of an AP is $7n + 4$. The common difference is (a) 7n (b) 4 (c) 7 (d) 1	1
11.	A point (x,y) is at a distance of 5 units from the origin. How many such points lie in the 3^{rd} quadrant ? (a) 0 (b) 1 (c) 2 (d) infinitely many	1
12.	A point G divides line segment in ratio 3:7. The segment starts at the origin and ends at point K having 20 as its abscissa and 40 as its ordinate. Given that G is closer to the origin than to point K. Which of the following coordinates are of point G (a) (6,12) (b) (12,6) (c) (14,28) (d) (2, - 1)	1
13.	In Triangle ABC, DE parallel to BC. If AD = 4cm, AB = 9cm and AC = 13.5 cm, then length of EC is (a) 6 cm (b) 7.5 cm (c) 9 cm (d) 5.7 cm	1

14.	In given fig. two line segments AC and BD intersect each other at the point P such that PA = 6 cm, PB = 3 cm, PC = 2.5 cm, PD = 5 cm, ∠APB = 50° and ∠CDP = 30°. Then, ∠PBA is equal to (a) 50^0 (b) 30^0 (c) 60^0 (d) 100^0 	1
15.	In what ratio does x-axis divide the line segment joining the points A(3,6) & B(−12,−3) ? (a) 1:2 (b) 1:4 (c) 4:1 (d) 2:1	1
16.	The next term of AP $\sqrt{8}$, $\sqrt{18}$, $\sqrt{32}$, ..., is : (a) $5\sqrt{2}$ (b) $5\sqrt{3}$ (c) $3\sqrt{3}$ (d) $6\sqrt{3}$	1
17.		1
18.		1
In the following questions a statement of **assertion** is followed by a statement of **reason**. Mark the correct choice as: (a) Both **assertion** and **reason** are true and **reason** is the correct explanation of **assertion**. (b) Both **assertion** and **reason** are true but **reason** is not the correct explanation of **assertion**. (c) **Assertion** is true but **reason** is false. (d) **Assertion** is false but **reason** is true.		
19.	Assertion : In a triangle if a line is drawn parallel to one side of a triangle and it intersects the other two sides then it divides those two sides proportionally. Reason : The basic proportionality theorem states that if a line parallel to one side of a triangle intersects the other 2 sides, then the segment created are proportional	1
20.	Assertion: If P(x,y) is equidistant from points A(7,1) and B(3,5) then x – y = 2 Reason: If Point P is equidistant from Point A and B then AP = BP	1
SECTION B		
21.	Prove that $\sqrt{7}$ is an irrational number.	2
22.	If the zeroes of the polynomial $x^2 + ax + b$ are in the ratio 3: 4, then prove that $12a^2 = 49b$.	2
23.	Solve the following system of equations algebraically: 30x+44y = 10; 40x+55y = 13	2
24.	Find the discriminant of the quadratic equation $4x^2 - 5 = 0$ and hence comment on the nature of roots of the equation.	2
25.	The 17^{th} term of an AP exceeds its 10^{th} term by 7. Find the common difference.	2
SECTION C		
26.	Find the ratio in which Y-axis divides the line segment joining points (5, - 6) and (-1,-4) also find the point of intersection.	3
27.	In the given figure, CD is the perpendicular bisector of AB. EF is perpendicular to CD. AE intersects CD at G. Prove that CF/CD=FG/DG 	3
28.	National Art convention got registrations from students from all parts of the country, of which 60 are interested in music, 84 are interested in dance and 108 students are interested in handicrafts. For optimum cultural exchange, organisers wish to keep them in minimum number of groups such that each group consists of students interested in the same artform and the number of students in each group is the same. Find the number of students in each group. Find the number of groups in each art form. How many rooms are required if each group will be allotted a room?	3
29.	The two angles of a right angled triangle other than 90∘ are in the ratio 2:3. Express the given situation algebraically as a system of linear equations in two variables and hence solve it.	3

30.	A train travels at a certain average speed for a distance of 54 km and then travels a distance of 63 km at an average speed of 6 km/h more than the first speed. If it takes 3 hours to complete the total journey, what is its first speed?	3
31.	A sum of Rs. 2000 is invested at 7% per annum simple interest. Calculate the interests at the end of 1st, 2nd and 3rd year. Do these interests form an AP? If so, find the interest at the end of the 27th year.	3
	SECTION D	
32.	In the given figure, ABCD is a parallelogram. BE bisects CD at M and intersects AC at L. Prove that EL=2BL.  	5
33.	The sum of the first six terms of an arithmetic progression is 42. The ratio of its 10th and 30th term is 1:3. Calculate the first and thirteenth term of an A.P.	5
34.	The numerator of a fraction is 3 less than its denominator. If 2 is added to both the numerator and the denominator, then the sum of the new fraction and original fraction is 29/20. Find the original fraction.	5
35.	The students of a class are made to stand in rows. If 3 students are extra in a row, there would be 1 row less. If 3 students are less in a row, there would be 2 rows more. Find the number of students in the class.	5
	SECTION E	
36.	To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections- section I and section II of grade X. There are 32 students in section I and 36 students in section II. Based on the given information, answer the following questions: (i) What is the minimum number of books you will acquire for the class library, so that they can be distributed equally among students of section A section B? (ii) How 36 can be expressed as a product of its primes? (iii) p and q are positive integers such that $p=ab^2$ and $q = ab$, where a, b are prime numbers. Then find the LCM of (p, q)?	4
37.	In order to organise, Annual Sports Day, a school prepared an eight lane running track with an integrated football field inside the track area as shown below:  The length of innermost lane of the track is 400 m and each subsequent lane is 7.6 m longer than the preceding lane. Based on given information, answer the following questions, using concept of Arithmetic Progression. (i) What is the length of the 6th lane? (ii) How long is the 8th lane than that of 4th lane? (iii) (a) While practicing for a race, a student took one round each in first six lanes. Find the total distance covered by the student. **OR** (iii) (b) A student took one round each in lane 4 to lane 8. Find the total distance covered by the student.	4

38.	Your friend Veer wants to participate in a 200m race. He can currently run that distance in 51 seconds and with each day of practice it takes him 2 seconds less.He wants to do in 31 seconds .  1. Which of the following terms are in AP for the given situation (a) 51,53,55…. (b) 51, 49, 47…. (c) -51, -53, -55…. (d) 51, 55, 59… 2. What is the minimum number of days he needs to practice till his goal is achieved (a) 10 (b) 12 (c) 11 (d) 9 3. Which of the following term is not in the AP of the above given situation (a) 41 (b) 30 (c) 37 (d) 394. 4. If nth term of an AP is given by an = 2n + 3 then common difference of an AP is (a) 2 (b) 3 (c) 5 (d) 1 5.	4