SUMMATIVE ASSESSMENT - III
MODEL PAPER
X CLASS MATHEMATICS - PAPER-I

Time : 2 hrs 45 min. **PART - A & B** **Max. Marks : 40**

SYLLABUS: 1. Real Number
2. Sets
3. Polynomials
4. Linear Equations in 2 Variables
5. Quadratic Equations
6. Progressions
10. Mensuration

TABLE (1) WEIGHTAGE TO ACADEMIC STANDARDS

S.No.	Academic Standards	Marks	Percentage
1	Problem Solving	16	40
2	Reasoning Proof	8	20
3	Communication	4	10
4	Connection	6	15
5	Visualization /Representation	6	15
	TOTAL	40	100

TABLE (2) WEIGHTAGE TO TYPE OF QUESTIONS

S.No.	Academic Standards	No. of Questions	Marks Alloted	Percentage
1	Very Short Answer	4	4	10
2	Short Answer	5	10	25
3	Essay/Long Answer	4	16	40
4	Multiple Choice	20	10	25
	Total	33	40	100

NOTE ; 1. There is weightage to only academic standards and type of questions.

2. There is no fixed weightage to content, but all chapters must be covered in each question paper.

3. Student should answer the questions as per the academic standard required.

4. Answer scripts shall be in the view of achievement of academic standards.

www.apteachers.in

SUMMATIVE ASSESSMENT - III
MODEL PAPER
MATHEMATICS - PAPER-I

Time : 2 hrs 45 min. **PART - A & B** **Max. Marks : 40**

Time : 2 hrs 15 min. **PART - A** **Max. Marks : 30**

Instructions : 1. Read all questions.
2. Part A answers should be written in separate answers book.
3. There are three sections in Part A.
4. Answer all questions.
5. Every answer should write visibly and neatly.
6. There is internal choice in Section-III.

SECTION - I

Instructions : 1. Answer all questions.
2. Each question carries 1 mark. 4×1 = 4 marks

1. If α, β are zeroes of the polynomial $2x^2 + 7x + 5$, find the value of $\alpha+\beta+\alpha\beta$?
2. If A = {1, 4, 9, 5, ...} then write it in set builder form.
3. The larger of two complimentary angles is double the smaller. Find the angles.
4. The height of a rectangular stockroom is 5m and perimeter of its floor is 50m. Find the outer area of the four walls to be painted.

SECTION – I

Instructions : 1. Answer all questions.
2. Each question carries 2 mark. 5×2 = 10 marks

5. Solve the equation $3x = 5^{x+2}$
6. Find the roots of the equation $5x^2 - 6x - 2 = 0$ by the method of completing square.
7. A cone of height 24cm and radius of base 6cm is made up modeling clay. A child reshapes it into a sphere. Find the radius of the sphere.
8. If α, β and γ are the zeroes of a polynomial of degree 3, then give the relations between the zeroes and the coefficients of the polynomial.
9. Find whether the equations $x^2 - 4x + 1.5 = 0$ and $2x^2 + 3 = 8x$ are consistent or not

SECTION - III

Instructions : 1. Answer all questions.
2. Choice any one from each question. 4×1 = 4 marks
Each question carries 4 marks

10a Solve the equations $\frac{10}{x+y}+\frac{2}{x-y}=4$ and $\frac{15}{x+y}+\frac{5}{x-y} = -2$

(or)

www.apteachers.in

10b An iron pillar consists of a cylindrical portion of 2.8 cm height and 20 cm in diameter and a cone of 42 cm height surmounting it. Find the weight of the pillar if $1cm^3$ of iron weighs 7.5 gram.

11a A contractor construction job specifies a penalty for delay of completion beyond a certain date as follows. Rs. 200 for the first day. The penalty for each succeeding day being Rs.50 more than the preceding day. How much money does the contractor pay as penalty if he has delayed the work by 30 days.

(or)

11b A Rectangular park is to be designed. Its breadth is 3m less than its length. Its area is to be 4 square meters more than the area of park that has already been made in the shape of an isosceles triangle with base as the breadth of the rectangular park and altitude 12m. Find the length and breadth.

12a Proove that $3+2\sqrt{5}$ is irrational

(or)

12b If A = {x | x is a prime number and x 20}

B = {x | 2x+1, xw and x9} then

Find (i) AB (ii) AB (iii) A-B (iv) B-A. What do you observe?

13a The Coach of a cricket team buys 3 bats and 6 balls for Rs.3900. Later he buys another bat and two more balls of the same kind for Rs.1300. What is the cost price of each? Solve the situation graphically.

(or)

13b Solve the quadratic polynomial $x^2 - 3x - 4$ graphically.

www.apteachers.in

SUMMATIVE ASSESSMENT - III
MODEL PAPER
MATHEMATICS - PAPER-I

Time : 2 hrs 45 min. **PART - A & B** **Max. Marks : 40**

Time : 30 min. **PART - B** **Max. Marks : 10**

Instructions : 1. Answer all the questions in Part-B.
2. Each question has 4 options. Write the capital letter indicating the answer in the given brackets.
3. Marks are not awarded for over writing answers.
4. All questions carry equal marks.

SECTION - IV

Instructions : 1. Answer all questions.
2. Each question carries 1/2 mark. 20×1/2 = 10 marks

14. The H.C.F. of 31, 43 and 47 is ..... ( )
A) 121 B) 1 C) 31 D) 43

15. If $x^2 + y^2 = z^2$ then $\frac{1}{\log_{z+y}^{x}} + \frac{1}{\log_{z-y}^{x}} =$ ..... ( )
A) 1 B) 2 C) −2 D) −1

16. n(A) = 14; n(B) = 11; n(AB) = 19 then n(AB) = ... ( )
A) 6 B) 16 C) 22 D) 25

17. If a fraction becomes 2 when 9 is added to its numerator and 1 when 2 is subtracts from its denominator then the fraction is ..... ( )
A) 5/8 B) 8/5 C) 5/7 D) 7/9

18. The sum of squares of two consecutive positive even numbers is 340, then the numbers are ..... ( )
A) 12, 14 B) 10, 12 C) 14, 16 D) 16, 18

19. Which term of the G.P 3,3 $\sqrt{3}$, 9, ... is 243 ? ( )
A) 6 B) 7 C) 8 D) 9

20. If $\sqrt{a} + \sqrt{b}$ is an irrational number, then which of the following is false ? ( )
A) 'a' and 'b' are prime B)'a' or 'b' is prime
C)'a' and 'b' are any integers D)one of 'a' or 'b' is not a perfect square

21. If p(x) = g(x)q(x)+r(x) if deg {p(x)} = deg {q(x)} then deg {g(x)} = ... ( )
A) 0 B) 1 C) 2 D) 3

22. The graph of y = ax+b is a straight line which intersects the X-axis at exactly one point namely, ... ( )

www.apteachers.in

A) $\left(0, \frac{b}{a}\right)$ B) $\left(\frac{b}{a}, 0\right)$ C) $\left(0, \frac{-b}{a}\right)$ D) $\left(\frac{-b}{a}, 0\right)$

23. If $x^2+ax+b = 0$; $x^2+bx+a = 0$ have a common roots then ( )

A) a+b = 0 B) ab = 1 C) a+b = 1 D) a+b+1 = 0

24. Coefficient of x in a polynomial $ax^2 + bx + c$ is 'o'. Then its zeroes are ( )

A) equal B)additive inverses to one another
C)multiplicative inverses to one another D)none

25. The series (n-1), (n-2), (n-3), ... is a type of ( )

A) AP B) GP C) may be both D) none

26. A metal cuboid of dimensions 22cm × 15cm × 7.5cm was melted and cast into a ( )
cylinder of height 14cm. Its radius is .....

A) 15cm B) 7.5cm C) 22.5cm D) 7cm

27. If log a, log b, log c are in A.P. then a, b, c are ( )

A) A.P. B) G.P. C) Both A.P and G.P D) neither A.P. nor G.P.

28. To calculate the quantity of milk inside a bottle, we need to find out ..... ( )

A) Area B) Valume C) Density D) Total surface area

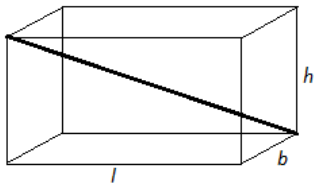
29. The height of right angle triangle is 7cm less than the base, the length of the diagonal ( )
is 17cm, then the length of remaining two sides are .....

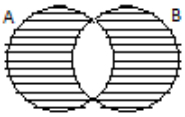
A) 15cm, 8cm B) 12cm, 5cm C) 24cm, 17cm D) All above

30. Length of the dark line given in the diagram ( )

A) $\sqrt{l^2+b^2}$ B) $\sqrt{l+b+h}$

C) $\sqrt{l^2+b^2+h^2}$ D) $(l+b+h)^2$



31. 

The shaded area in the figure shows ( )

A) A-B B) B-A C) A∩B D) (AuB)(A∩B)

32. Solution of xy = 2; x+y = 0 lies in ..... quadrant. ( )

A) I B) IV C) II D) III

33. Inconsistent equations may represent. ( )

A) intersect line B) parallel lines C) coinciding lines D) B or C

www.apteachers.in

Q. No	Chapter	Academic standard wise marks				
		AS 1	AS 2	AS 3	AS 4	AS 5
	Very short answer questions					
1	Polynomials	1				
2	Sets			1		
3	Linear Equations in 2 Variables				1	
4	Mensuration				1	
	Short answer questions					
5	Real Number	2				
6	Quadratic Equations	2				
7	Mensuration				2	
8	Polynomials			2		
9	Linear Equations in 2 Variables		2			
	Essay answer type questions					
10	Linear Equations in 2 Variables	4				
	Mensuration					
11	Progressions	4				
	Quadratic Equations					
12	Real Numbers		4			
	Sets					
13	Linear Equations in 2 Variables					4
	Polynomials					
	Part B: Objective type questions					
14	Real Number	0.5				
15	Real Number	0.5				
16	Sets	0.5				
17	Quadratic Equations	0.5				
18	Quadratic Equations	0.5				
19	Progressions	0.5				
20	Real Number		0.5			
21	Polynomials		0.5			
22	Linear Equations in 2 Variables		0.5			
23	Quadratic Equations		0.5			
24	Polynomials			0.5		
25	Progressions			0.5		
26	Mensuration				0.5	
27	Real Number				0.5	
28	Mensuration				0.5	
29	Mensuration				0.5	
30	Mensuration					0.5
31	Sets					0.5
32	Linear Equations in 2 Variables					0.5
33	Linear Equations in 2 Variables					0.5
	Total	16	8	4	6	6

THIS TABLE IS NOT FIXED
www.apteachers.in

SUMMATIVE ASSESSMENT - III
MODEL PAPER
X CLASS MATHEMATICS - PAPER-II

Time : 2 hrs 45 min. **PART - A & B** **Max. Marks : 40**

SYLLABUS: 7. Co-ordinate Geometry
8. Similar Triangles
9. Tangents and Secants to a circle
11. Trigonometry
12. Applications of Trigonometry
13. Probability
14. Statistics

TABLE (1) WEIGHTAGE TO ACADEMIC STANDARDS

S.No.	Academic Standards	Marks	Percentage
1	Problem Solving	16	40
2	Reasoning Proof	8	20
3	Communication	4	10
4	Connection	6	15
5	Visualization /Representation	6	15
	TOTAL	40	100

TABLE (2) WEIGHTAGE TO TYPE OF QUESTIONS

S.No.	Academic Standards	No. of Questions	Marks Alloted	Percentage
1	Very Short Answer	4	4	10
2	Short Answer	5	10	25
3	Essay/Long Answer	4	16	40
4	Multiple Choice	20	10	25
	Total	33	40	100

NOTE ; 1. There is weightage to only academic standards and type of questions.

2. There is no fixed weightage to content, but all chapters must be covered in each question paper.

3. Student should answer the questions as per the academic standard required.

4. Answer scripts shall be in the view of achievement of academic standards.

www.apteachers.in

SUMMATIVE ASSESSMENT - III
MODEL PAPER
MATHEMATICS - PAPER-II

Time : 2 hrs 45 min. **PART - A & B** **Max. Marks : 40**

Time : 2 hrs 15 min. **PART - A** **Max. Marks : 30**

Instructions : 1. Read all questions.
2. Part A answers should be written in separate answers book.
3. There are three sections in Part A.
4. Answer all questions.
5. Every answer should write visibly and neatly.
6. There is internal choice in Section-III.

SECTION - I

Instructions : 1. Answer all questions.
2. Each question carries 1 mark. 4×1 = 4 marks

1. If C (2, P) is a point on the line segment joining the points A (6, 5) and B (2, 11). Explain condition for the point C to become the mid point of AB.
2. A boy observes that the length of his shadow is equal to his height. What is the angle of elevation of the Sun rays?
3. In a class of 35, 28 students brought Junk food for their lunch. What was the probability that a student at random would have brought healthy food?
4. The circumference of a circle exceeds the diameter by 16.8 cm. Find the circumference of the circle.

SECTION - II

Instructions : 1. Answer all questions.
2. Each question carries 2 mark. 5×2 = 10 marks

5. Compare the areas of two equilateral triangles which are constructed on side of a square and its diagonal.
6. An ant is at (4, 5) on graph sheet mounted of a wall. If it moves to a point (5, 2) and turns to reach another point (3, 6). Find the distance travelled by the ant.
7. Show that $(1-\sin\theta)(1+\sin\theta)(1+\tan^2\theta)=1$
8. Find the median of the following distribution

CI	65-85	85-105	105-125	125-145	145-165	165-185	185-205
f	3	4	12	15	14	12	8

9. A box contains 25 balls numbered as 1, 2, 3, ..., 25. A ball is drawn from the box at random. What is the probability for getting the ball bearing the number, that
(i) is divisible by 6 (ii) is a prime number

www.apteachers.in

SECTION - III

Instructions : 1. Answer all questions.
2. Each question carries 4 mark. 4×4 = 16 marks

10a Prove that a line drawn through the mid-point of one side of a triangle parallel to another side bisects the third side.

(OR)

10b Vertices of a triangle ABC are A (3, 5), B (7, 4) and C (10, 8). The mid point of the side BC, CA and AB are D, E and F respectively. Are the centroids of ΔABC and ΔDEF are same or not?

11a If $\tan x = \frac{5}{12}$, then find the value of sec x and $\sqrt{\frac{Sec\ x+1}{Sec\ x-1}}$

(OR)

11b There is a tower beside the road, Rahim standing at the top of the tower observes two cars A and B on either side of the tower at an angle of depression 30^o and 60^o are approaching the foot of the tower with a uniform speed of 10m/s and 5m/s respectively. If the height of the tower is $100\sqrt{3}$m, then find which car reaches the tower first and how many seconds the other car is late by the first one.

12a A bag contains 6 yellow balls and some green balls. The probability of getting a green ball is triple that of a yellow ball. Determine number of Green balls in the bag and find the probability of each colour ball when a ball is drawn at time randomly.

(OR)

12b Ramu has a triangular site. He observes the corners of the triangular site are (2, 3), (4, 1), (−2, 5). Find the area of the swimming pool dug by joining of the mid points of the sides of the site.

13a The following distribution gives the marks of 80 students in S.A-2 of Mathematics. Draw ogive curve for the distribution.

Marks scored	0−10	10−20	20−30	30−40	40−50	50−60	60−70	70−80
No.of Students	04	06	11	20	16	10	08	05

(OR)

13b Draw a circle of radius 6cm. 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.

www.apteachers.in

SUMMATIVE ASSESSMENT - III
MODEL PAPER
MATHEMATICS - PAPER-II

Time : 2 hrs 45 min. **PART - A & B** **Max. Marks : 40**

Time : 30 min. **PART - B** **Max. Marks : 10**

Instructions : 1. Answer all the questions in Part-B.
2. Each question has 4 options. Write the capital letter indicating the answer in the given brackets.
3. Marks are not awarded for over writing answers.
4. All questions carry equal marks.

SECTION - IV

Instructions : 1. Answer all questions.
2. Each question carries 1/2 mark. 20×1/2 = 10 marks

14. If the slope of a line is 'l' then the angle made by it with X-axis in positive direction is ( )
A) 30° B) 45° C) 60° D) 90°

15. If ΔPQR ~ ΔXYZ and PQ : XY = 5:8, then the ratio of their corresponding median is .. ( )
A) 5:8 B) 10:16 C) 25:64 D) 8:5

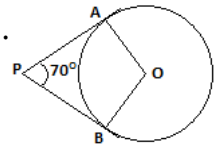
16. $\frac{sec^4A - \tan^4 A}{sec^2A - \tan^2 A}$ = ... ( )
A) 0 B) 1/2 C) 1 D) 1

17. If the shadow of a tower is $\sqrt{3}$ times its height then altitude of the Sun is ( )
A) 45° B) 30° C) 60° D) 90°

18. Three coins are tossed simultaneously, then probability of getting at least one tail is ( )
A) 3/4 B) 1/3 C) 7/8 D) 2/3

19. The mean of a data consisting 25 observations is 40. In doing so observation 53 was wrongly recorded as 28. Then the correct mean is ( )
A) 26 B) 39 C) 41 D) 46

20. From the figure if ∠APB = 70° then ∠AOB = ... ( )
A) 70° B) 90°
C) 160° D) 110°



21. The following line has only one point in common to the circle ( )
A) diameter B) tangent C) secant D) chord

22. Which of the following is not possible ( )
A) sin θ = 0.5 B) cos θ = 0 C) tan θ = 2 D) sec θ =

www.apteachers.in

23. Which of the following is correct ? ( )

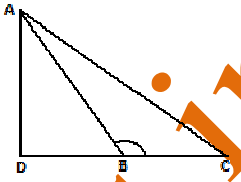
A) Class mark = $\frac{\textit{Upper}\ \text{Class Limit - Lower Class Limit}}{2}$

B) Class mark = $\frac{\textit{Upper}\ \text{Class Limit + Lower Class Limit}}{2}$

C) Class mark = Upper Boundary − Lower Boundary

D) Class mark = Upper Boundary + Lower Boundary

24. In the figure $\angle B$ is an obtuse angle, then AC^2 = ... ( )



A) $AB^2+BC^2-BD^2$ B) AB^2+BC^2

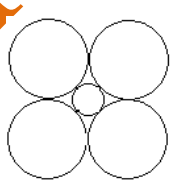
C) $AB^2+BC^2+2BC.DB$ D) $AB^2+BC^2-2BC.DB$

25. Modal class of the following distribution is ( )

Age	0−10	10−20	20−30	30−40	40−50	50−60
No. of Patients	12	09	05	10	25	18

A) 10−20 B) 20−30 C) 30−40 D) 40−50

26. In the given figure, the radius of the outer circle is '7' units; ( )



then the radius of the inner circle is

A) $7\sqrt{2}$ units B) $7\sqrt{2-1}$ units

C) $\frac{7}{\sqrt{2}}$ units D) $\frac{14}{(\sqrt{2+1})}$ units

27. A Social Studies text book contains 250 pages. A page is selected at random. ( )

What is the probability that the number on the page selected is a perfect square?

A) B) C) D)

28. The probability of getting 53 Sundays in an ordinary year is ..... ( )

A) $\frac{52}{53}$ B) $\frac{1}{52}$ C) $\frac{1}{7}$ D) $\frac{6}{7}$

29. Match the following

1) cos (180+θ) ( ) a) cot θ

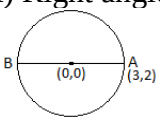
2) sec (270+θ) ( ) a) cos θ

3) tan (90+θ) ( ) a) cosec θ

A) 1b, 2c, 3a B) 1c, 2b, 3a C) 1a, 2b, 3c D) 1c, 2a, 3b ( )

30. (0, 0), (1, 0), (0, 3) are vertices of a ..... triangle. ( )

A) Right angle B) Isosceles C) Right isosceles D) Equilateral

31. 

Co –ordinates of second end of the diameter is ..... ( )

A) (2, 3) B) (−2, −3) C) (−3, −2) D) (6, 4)

32. In a ΔABC, DE//BC and intersects AB at D and AC at E, then ( )

www.apteachers.in

1) $\frac{AD}{DB} = \frac{AE}{Ed}$ 2) $\frac{AB}{AD} = \frac{AC}{AE}$ 3) $\frac{AB}{DB} = \frac{Ad}{Ed}$

A) 1–T, 2–T, 3–T B) 1–T, 2–F, 3–T C) 1–F, 2–T, 3–F D) 1–F, 2–F, 3–T

33. If the two trees of heights h_1 and h_2 subtended angles of 30^o and 60^o respectively at the mid point of the line joining their feet then $h_1 : h_2$ is ..... ( )

A) $\sqrt{3}:1$ B) $1:\sqrt{3}$ C) 3:1 D) 1:3

Q. No	Chapter	Academic standard wise marks				
		AS 1	AS 2	AS 3	AS 4	AS 5
	Very short answer questions					
1	Co-ordinate Geometry			1		
2	Applications of Trigonometry				1	
3	Probability				1	
4	Tangents and Secants to a circle	1				
	Short answer questions					
5	Similar Triangles			2		
6	Co-ordinate Geometry				2	
7	Trigonometry		2			
8	Statistics	2				
9	Probability	2				
	Essay answer type questions					
10	Similar Triangles		4			
	Co-ordinate Geometry					
11	Trigonometry	4				
	Applications of Trigonometry					
12	Probability	4				
	Co-ordinate Geometry					
13	Statistics					4
	Tangents and Secants to a circle					
	Part B: Objective type questions					
14	Co-ordinate Geometry	0.5				
15	Similar Triangles	0.5				
16	Trigonometry	0.5				
17	Applications of Trigonometry	0.5				
18	Probability	0.5				
19	Statistics	0.5				
20	Tangents and Secants to a circle		0.5			
21	Tangents and Secants to a circle		0.5			
22	Trigonometry		0.5			
23	Statistics		0.5			
24	Similar Triangles			0.5		
25	Statistics			0.5		

www.apteachers.in
THIS TABLE IS NOT FIXED

26	Tangents and Secants to a circle				0.5	
27	Probability				0.5	
28	Probability				0.5	
29	Trigonometry				0.5	
30	Co-ordinate Geometry					0.5
31	Co-ordinate Geometry					0.5
32	Similar Triangles					0.5
33	Applications of Trigonometry					0.5
	Total	16	8	4	6	6

www.apteachers.in