

1. DESIGN OF QUESTION PAPER:

Subject: General Mathematics

Class: – X

Time: 180 min (3 hours)

Marks: 80

A. Weightage to Objectives:

Objectives	knowledge	Understanding	Application	Skill	Total
% Of Marks	40%	30%	20%	10%	100%
Marks	32	24	16	8	80

B. Weightage to Types of Questions:

Type of Question	ET	SAT	VSAT	OT	Total
No. of Question	5	10	10	5	30
Marks Allotted	25	30	20	5	80

C. Weightage to Estimated Time:

Type of Question	ET	SAT	VSAT	OT	Total
No. of Question	5	10	10	5	30
Marks Allotted	25	30	20	5	80
Time Estimated (Min)	85	60	30	5	180

D. Weightage to Content:

Sl. No.	UNIT	CONTENT	MARKS
1	I	Real Number	6
2	II	Polynomials	5
3	III	Pair of Linear Equation in two Variable	5
4	IV	Quadratic Equations	5
5	V	Arithmetic Progressions	5
6	VI	Triangles	6
7	VII	Coordinate Geometry	6
8	VIII	Introduction to Trigonometry	7
9	IX	Some Applications of Trigonometry	5
10	X	Circles	5
11	XI	Constructions	5
12	XII	Areas Related to Circles	5
13	XIII	Surface Areas and Volumes	5
14	XIV	Statistics	5
15	XV	Probability	6
TOTAL			80

E. Weightage to Difficulty Level:

DIFFICULTY LEVEL	% OF MARKS	MARKS
Difficult	20%	16
Average	50%	40
Easy	30%	24
Total	100%	80

2. BLUEPRINT

Subject: Mathematics

Marks: 80

Class: X

Time: 3 Hours

Sl. No.	CONTENT Types of Questions Content	KNOWLEDGE				UNDERSTANDING				APPLICATION				SKILL		TOTAL
		ET	SAT	VSAT	OT	ET	SAT	VSAT	OT	ET	SAT	VSAT	OT	ET	SAT	
1	Real Number			2 (1)			2 (1)					2 (1)				6
2	Polynomials			2 (1)							3 (1)					5
3	Pair of Linear Equation in two Variable			2 (1)											3 (1)	5
4	Quadratic Equations			2 (1)			3 (1)									5
5	Arithmetic Progressions		3 (1)					2(1)								5
6	Triangles				2(2)		3(1)									6
7	Coordinate Geometry		6(2)													6
8	Introduction to Trigonometry				1(1)					1(1)		3(1)	2 (1)			7
9	Some Applications of Trigonometry									5(1)						5
10	Circles					5(1)										5
11	Constructions													5(1)		5
12	Areas Related to Circles			2 (1)			3(1)									5
13	Surface Areas and Volumes					5(1)										5
14	Statistics	5(1)														5
15	Probability		3(1)	2 (1)										1(1)		6
16	Sub Total	5(1)	12(4)	12(6)	3(3)	10(2)	9(3)	4(2)	1(1)	5(1)	6(2)	4(2)	1(1)	5(1)	3(1)	
	Total			32			24				16			8		80

Note:

- ❖ Figure within the bracket “()” indicates total number of questions and outside the brackets indicates total marks.
- ❖ ET – Essay Type, SAT – Short Answer Type, VSAT – Very Short Answer Type, OT – Objectives Type.

Summary:

Forms of Question	No. of Question	Marks
ET	5	25
SAT	10	30
VSAT	10	20
OT	5	5
Total	30	80

3. WRITING THE QUESTIONS IN ITEMSHEET:

Item Sheet: 1

Class: X

Subject: General Mathematics

Unit: I

Objective: A

Specification: Find out

Estimated Time: 3 min

Form of Question: VSAT

Estimated Difficulty Level: Easy

Question: Find the LCM and HCF of the following integers:

(i) 12, 15, 21

Item Sheet: 1

Class: X

Subject: General Mathematics

Unit: I

Objective: U

Specification: Justify

Estimated Time: 3 min

Form of Question: VSAT

Estimated Difficulty Level: Easy

Question: Check whether $16/15$ will have a terminating decimal expansion and non-terminating repeating decimal expansion?

(Write Item Sheet for Each Question Separately)

4. ORGANISATION OF QUESTIONS:

Final Examination, 2022

Class: X

General Mathematics

Time: 3 hours

Maximum Marks: 80

1. State the following sentences 'True' or 'False'.

(1 X 5 = 5)

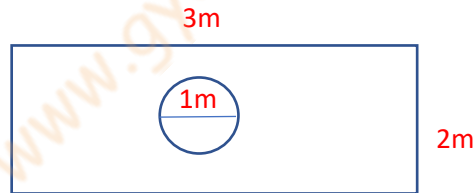
- a) All isosceles triangles are congruent.
- b) Similar triangles have equal corresponding angles.
- c) The value of $\sin \theta$ increases as θ increases.

- d) The value of $\tan\theta$ is always less than 1.
- e) A new born baby son can be either a boy or girl and both the outcome have equally likely chances.

2. Answer the following questions –

(2 X 10 = 20)

- a) Find the LCM and HCF of the following integer: (12, 15, 21)
- b) Use elimination method to find all possible solution of the given pair of linear equation.
 $2x + 3y = 8$, $4x + 6y = 7$
- c) Find the discriminant of the equation $3x^2 - 2x + \frac{1}{3} = 0$ and hence find the nature of its roots. Find them if they are real.
- d) Check whether $16/15$ will have a terminating decimal expansion and non-terminating repeating decimal expansion?
- e) Find the area of sector of a circle with radius 6cm, if angle of the sector is 60° .
- f) Check whether $\sqrt{3}, \sqrt{6}, \sqrt{9}, \sqrt{12}, \dots$ forms an AP.
- g) Prove that $7\sqrt{3}$ is irrational.
- h) Find the zeroes of the following quadratic equations. $6x^2 - 3 - 7x$.
- i) Show that $\frac{2 \tan 30^\circ}{1 + \tan^2 30^\circ} = \sin 60^\circ$
- j) Suppose you drop a die at random on the rectangular region shown in fig. What is the probability that it will land inside the circle with diameter 1m?



3. One card is drawn from a well shuffled deck of 52 cards. Find the probability of getting

(3)

- a) A king of red colour
- b) A face card
- c) Jack of heart

4. Find quotient and remainder by applying division algorithm where $p(x) = x^3 - 3x^2 + 5x - 3$, $g(x) = x^2 - 2$.

(3)

5. Check graphically whether the pair of equation is consistent. If so, solve them graphically. (3)

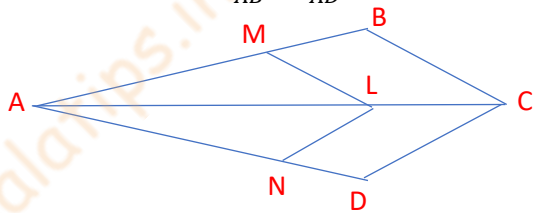
$$x + 3y = 6, 2x - 3y = 12$$

6. Find the value of K for the following quadratic equation. (3)

$$Kx(x - 2) + 6 = 0$$

7. Find the 20th term from the last term of the AP: 3, 8, 13,, 253 (3)

8. In fig. $LM \parallel CB$; $LN \parallel CD$. Prove that $\frac{AM}{AB} = \frac{AN}{AD}$ (3)



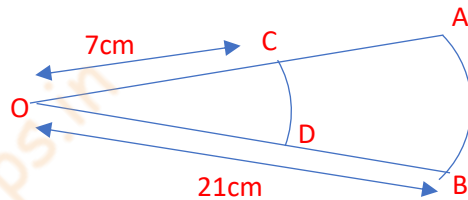
9. Name the type of quadrilateral form by the following joints. (3)

$(-1, -2), (1, 0), (-1, 2), (-3, 0)$

10. Find the value of K for which the points are collinear. (3)

$(7, -2); (5, 1); (3, k)$

11. In the fig. AB and CD are respectively arc of two concentric circles of radii 21cm and 7cm and centre O. If $\angle AOB = 30^\circ$, find the area of the shaded region. (3)



12. If $\tan(A + B) = \sqrt{3}$ and $\tan(A - B) = \frac{1}{\sqrt{3}}$, $0^\circ < A + B \leq 90^\circ$; $A > B$, find A and B. (3)

13. Following table shows the ages of the patients admitted in a hospital during a year. (5)

Age (in years)	5-15	15-20	25-35	35-45	45-55	55-65
No. of Patients	6	11	21	23	14	5

Find out the (a) Mean and Mode or Mean and Median.

14. Construct a triangle with sides 5cm, 6cm, and 7cm and then another triangle whose sides are $\frac{7}{5}$ of the corresponding sides of the triangle. (5)

15. From a solid cylinder whose height is 2.4cm and diameter 1.4cm, a conical cavity of the same height and same diameter is hollowed out. Find the total surface area of the remaining solid to the nearest cm^2 . (5)

16. Prove that angle between the two-tangent drawn from an external point to a circle is supplementary to the angle subtended by the line segment joining the point of contact at the centre. (5)

17. From the top of a 7cm high building, the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45° . Determine the height of the tower.

(5)

5. QUESTION WISE ANALYSIS:

Subject:

Total Marks:

Class:

Sl. No.	Objectives	Specification	Unit	Forms of Questions	Marks Allotted	Estimated Time	Estimated Difficulty Level
1	A	Find Out	I	VSAT	2	3 min	C
2	.....	.....	....	.....	.....	.....	....
n	.....	.....	....	.....	.....	.....	....

NOTE:

Use of Abbreviation as follows:

a) For Objectives:

K – Knowledge U – Understanding A – Application S – Skill

b) For Form of Questions:

OT – Objectives Type VSA – Very Short Answer SA – Short Answer LA/E – Long Answer/Essay

c) Form of Difficulty Level of Questions:

A = Difficulty B = Average C = Easy

6. PREPARING THE SCORING KEY AND THE MARKING SCHEME:

Question No.	Value Point / Key Point	Marks Allotted to Each Value Point	Total Marks
1
2
3
....

-----X-----

By – GyanShalatips.in

One More Blueprint Coming: Stay Updated: <https://gyanshalatips.in/>