10 th CLASS

MATHEMATICS

PAPER - II | **PART – A & B**

MODEL PAPER - 1

Time 2.30 Hours

Max Marks: 50

Instructions: 1) Answer the questions under Part-A on a separate answer book

2) Write the answer to the Questions under Part-B on the question paper itself & attach it to the answer book of Part-A

Time: 2 Hours **PART – A** **Marks: 35**

SECTION – I **5x2=10**

Note: 1) Answer any 5 questions choosing at least 2 from each of the following two groups A & B

2) Each question carries 2 Marks.

GROUP – A

(Similar Triangles, Tangents and Secants to a Circle, Mensuration)

1. Prove that if the areas of two similar triangles are equal then they are congruent.
2. A car has two wipers which do not overlap. Each wiper has a blade of length 25cm. Sweeping through an angle of 115°. Find the total area cleaned at each sweep of the blades. (use π =22/7).
3. Prove that the lengths of tangents drawn from an external point to a circle are equal.
4. A cone of height 24cm and radius of base 6cm is made up of modelling clay. A clay reshapes it in form of a sphere. Find the radius of the sphere.

GROUP – B

(Trigonometry, Applications of Trigonometry, Probability, Statistics)

5. If sinA = cosB, then prove that A+B=90°.
6. A Boy observed the top of an electric pole at an angle of elevation of 60° when the observation point is 8 meters away from the foot of the people. Find the height of the people.
7. Sangeetha and Reshma play a tennis match. It is known that probability of Sangeetha winning the match is 0.62. what is the probability of Reshma winning the match?
8. The following table gives the literacy rate (in percentage) of 35 cities. Find the mean literacy rate.

Literacy rate in %	44-55	55-65	65-75	75-85	85-95
Number of cities	3	10	11	8	3

SEXTION –II 4x1 = 4

Note: 1) Answer any four of the following questions.

2) Each question carries 1 Mark.

9. The perimeters of two similar triangles are 30cm and 20cm respectively. If one side of the first triangle is 12cm, determine the corresponding side of the second triangle.
10. A right circular cylinder has base radius 14cm and height 21cm. Then find curved surface area.
11. Evaluate $\frac{1-tan^2 45^\circ}{1+tan^2 45^\circ}$
12. What is the probability that the card drawn will be a queen?
13. Write the formula of mode for a grouped data.
14. The curved surface area of a cone is 4070 cm^2 and its diameter is 70cm. What is its slant height?

SECTION - III 4x4=16

Note: 1) Answer any 4 questions choosing at least 2 from each of the following two groups A & B

2) Each question carries 4 Marks.

GROUP – A

(Similar Triangles, Tangents and Secants to a Circle, Mensuration)

15. Prove that three times the square of any side of an equilateral triangle is equal to four times the square of the altitude?
16. Prove that the parallelogram circumscribing a circle is a rhombus.
17. A round table top has six equal designs as shown in figure. If the radius of the table top is 14cm. Find the cost of making the designs with paint at the rate oh rs.5 per cm^2.(use $\sqrt{3}$=1.732)
18. How many spherical balls can be made out of a solid cube of lead whose edge measures 44cm and each ball being 4cm in diameter.

GROUP – B

(Trigonometry, Applications of Trigonometry, Probability, Statistics)

19. Prove that $\sqrt{\frac{1+\cos\theta}{1-\cos\theta}} = \operatorname{cosec}\theta + \cot\theta$.
20. Two men on either side of a temple of 30 meters height observe its top at the angles of elevation 30° and 60° respectively. Find the distance between the two men.
21. Suppose we throw a die once (i) what is the probability of getting a number greater than 4? (ii) what is the probability of getting a number less than or equal to 4?
22. A class teacher has the following attendance record of 40 students of a class for the whole team. Find the mean number of days a student was present out of 56 days in the term

Number of days	35-38	38-41	41-44	44-47	47-50	50-53	53-56
No of students	1	3	4	4	7	10	11

SECTION – IV 1x5=5

Note: 1) Answer one question from the following.
2) Each question carries 5 Marks.

(Similar Triangles, Application of Trigonometry)

23. Construct a triangle of sides 4cm,5cm, and 6cm. Then construct a triangle similar to it, whose sides are 2/3 of the corresponding sides of the first triangle.
24. The angle of elevation of the top of a building from the foot of the tower is 30° and the angle of elevation of the top of the tower from the foot of the building is 60°, if the tower is 30m high, find the height of the building.

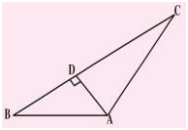
PART - B

Time: 30 Minutes **Model Paper - 1** **Marks: 15**

I. Write the capital letter showing the correct answer for the following questions in the brackets provided against them. **10 x $\frac{1}{2}$ = 5**

1. In triangle ABC P,Q are two points on AB,AC,AP=1cm BP=3cm, AQ=1.5cm, CQ=4.5cm .Then area of APQ is..... part of the area of triangle ABC. [ ]

A. 16 B. 15 C. 14 D. 12

2. 

From adjacent figure AD⊥ BC then AB^2+CD^2=..... [ ]

A. AD^2+AC^2 B.BD^2+AC^2 C. AC^2+AD^2 D. BD^2+AD^2

3. Parallelogram circum scribing a circle is a..... [ ]

A. square B. Rectangle C. trapezium D. Rhombus

4. Surface area of hemisphere whose radius is 21cm is ..... cm^2 [ ]

A. 5454 B. 4545 C. 5544 D. 5455

5. If $\cot\theta$=3/4 then $\frac{1+\sin\theta}{\cos\theta}$= ..... [ ]

A. 2 B. 3 C.4 D. 5

6. To find the following central tendency cumulative frequency is used [ ]

A. median B. Mean C. Mode D. Deviation

7. Probability of event 'E' is 0.7 then probability of event 'not E' is .....

A. 0.2 B. 0.3 C. 0.1 D. 0

8. Which of the following value is not a value of probability [ ]

A. 2.3 B. 15% C.0.7 D. 10^{-2}

9. 'h' mts length of ladder is placed on a window. The ladder is made θ [ ]

angle with the Ground then which trigonometric ratio is used to find distance

from bottom of ladder o wall is

A. Sin B. Cosec C. Tan D. Cos

10. Angle made by radius of circle to tangent to a circle is ..... [ ]

A. 90° B. 80° C.60° D.70°

II. Fill in the blanks with suitable answers **10 x $\frac{1}{2}$ = 5**

11) No. Of tangents drawn external Point of a circle is .....

12) Base radius of right circular cone is 21cm and height is 21cm then its C.S.A is .....

13) If a boy is flying a kite at angle of elevation and kite is flying at 'h' mts from earth then trigonometry ratio to find length of thread is .....

14) Median of first 10multiples of 5 is .....

15) A bag contains 3red, 5 black balls. If a ball is selected from bag, probability that the

ball is red ball .....

16) If ABC ~ PQR and m ∠A=30° , m ∠B=70° then m ∠R = ...

17) If two dice are thrown at a time then probability that sum of two digits appearing on the top of dice is .....

18) The degree measure of the angle at the centre is x^0 . Then the area of sector is .....

19) cos36°cos54°-sin36°sin54°= .....

20) Probability of event E + probability 'not E' .....

III. For the following questions under Group-A choose the correct answer from the master list Group-B and write the letter of the correct answer in the brackets provided against each item **10 x $\frac{1}{2}$ = 5**

A. **GROUP-A**		**GROUP – B**
21. If ABC is right angle isosceles triangle ∠C=90° then AB^2	[ ]	A. 25
22. If A is a point of contact B is exterior Point and C is outer of circle then AC^2+AB^2=	[ ]	B. 3:1
23. Ratio of volumes of cylinder cone Whose radii heights are same	[ ]	C. BC^2

24. Length of ladder if it touches [ ] D. 26

the window at 24mts high and 10 mts Distance from ground

25. Median of 20,23,24,25,26,29,31 is [ ] E. $2BC^2$

F. 1:3

G. 27

H. $2AC^2$

B. **GROUP-A** **GROUP – B**

26. Possible values of A,B which satisfy [ ] I. 10/13

Sin(A+B)=sinA+sinB

27. $\frac{\cos(90°-A)}{\cot(90°-A)}$ = [ ] J. $(\frac{N+1}{2})^{th}$ item

28. Probability that a card & not a face card [ ] K. cosA

Which is selected from a deck

29. If no. Of items in ungrouped data 'n' is odd [ ] L. 144.5

then median is ..... item

30. In classes 127-135,136-144 , 145-153 [ ] M. 144

the upper limit of 136-144 is N. 0, 90°

O. $(\frac{N}{2})^{th}$ item