

TERM-II

SAMPLE QUESTION PAPER

BLUE PRINT

Time Allowed : 2 hours

Maximum Marks : 40

S. No.	Unit / Chapter		Section-A (2 marks)	Section-B (3 marks)	Section-C (4 marks)	Total
1.	Unit-I	Quadratic Equations	1(2)	1(3)	–	4(10)
2.		Arithmetic Progressions	1(2)*	1(3)*	–	
3.	Unit-II	Circles	1(2)	1(3)	–	3(9)
4.		Constructions	–	–	1(4)*	
5.	Unit-III	Some Applications of Trigonometry	–	1(3)	1(4)	2(7)
6.	Unit-IV	Surface Areas and Volumes	1(2)*	–	1(4)	2(6)
7.	Unit-V	Statistics	2(4)	–	1(4)	3(8)
		Total Questions	6(12)	4(12)	4(16)	14(40)

*It is a choice based question.

Mathematics - Basic

Time Allowed : 2 hours

Maximum Marks : 40

General Instructions :

- The question paper consists of 14 questions divided into 3 sections A, B, C.
- Section A comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
- Section B comprises of 4 questions of 3 marks each. Internal choice has been provided in one question.
- Section C comprises of 4 questions of 4 marks each. An internal choice has been provided in one question. It contains two case study based questions.

SECTION - A

- Write the modal class for the following frequency distribution.

Class-interval	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	30	35	75	40	30	15

- If 18th and 11th term of an A.P. are in the ratio 3 : 2, then find the ratio of its 21st and 5th terms.

OR

Find the sum of all 2-digit numbers.

- AP and AQ are tangents drawn from a point A to a circle with centre O and radius 9 cm. If OA = 15 cm, then find AP.
- Solve the given quadratic equation
 $12abx^2 - (9a^2 - 8b^2)x - 6ab = 0$
- The rainwater from a roof 44 m × 10 m drain into a conical vessel having diameter of base as 1 m and height 7 m. If the vessel is just full, find the rainfall (in cm).

OR

A solid is hemispherical at the bottom and conical (of same radius) above it. If the surface areas of the two parts are equal, then find the ratio of its radius and the slant height of the conical part.

- Find the value of mode, using an empirical relation, when it is given that mean and median are 10.5 and 9.6 respectively.

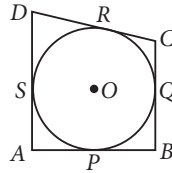
SECTION - B

- Find two consecutive positive integers, the sum of whose squares is 61.
- If p, q, r are in A.P., then find the value of $p^3 + r^3 - 8q^3$ in terms of pqr .

OR

Which term of the A.P. 4, 7, 10, 13, is 49?

9. Two men on either side of a 75 m high building and in line with base of building observe the angles of elevation of the top of the building as 30° and 60° . Find the distance between the two men.
10. In the given figure, $\angle DAB = 90^\circ$, $AD = 40$ cm, $CD = 35$ cm and $CQ = 18$ cm. Find the radius of the circle.



SECTION - C

11. Draw a circle of radius 7 cm and then draw a tangent to this circle making angle of 45° with a line passing through the centre.

OR

Draw a pair of tangents to a circle of radius 3 cm, which are inclined to each other at an angle of 90° .

12. Find the mean marks of students from the following cumulative frequency distribution:

Marks	Number of students
0 and above	80
10 and above	77
20 and above	72
30 and above	65
40 and above	55
50 and above	43
60 and above	28
70 and above	16
80 and above	10
90 and above	8
100 and above	0

Case Study - 1

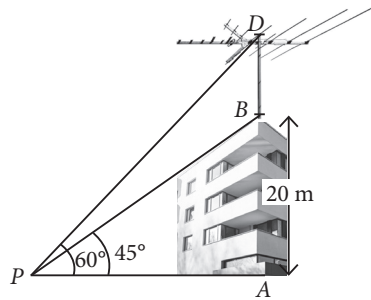
13. Soumya made some orange juice in a cylindrical jug of radius 14 cm to a height of 25 cm. Then she added 11 ice cubes, some slices of orange into jug.



- (i) Find the volume of juice in the jar.
- (ii) If each ice cube is of side 5.6 cm, then what is the volume of each ice cube?

Case Study - 2

14. A building stands on a horizontal plane and is surmounted by a vertical antenna. At a point on a plane an observer notices that the angles of elevation of the top and the bottom of the antenna are 60° and 45° respectively. The height of the building is 20 m. (Take $\sqrt{3} = 1.732$)



- (i) Find the distance of foot of building from P.
- (ii) Find the height from the top of antenna to ground level.