

6. Mathematics
Summative Assessment - II
Class X
Design of the Question Paper

Type of Question	Marks per question	Total No. of Questions	Total Marks
M.C.Q.	1	10	10
VSA	2	8	16
SA	3	10	30
LA	4	6	24
	TOTAL		80

Blue Print
Sample Question Paper
Mathematics, SA-II
Class X

Units	MCQ(1)	SA-I(2)	SA II (3)	LA(4)	Total
Algebra	2(2)	4(2)	6(2)	8(2)	20(8)
Geometry	4(4)	2(1)	6(2)	4(1)	16(8)
Mensuration	2(2)	4(2)	6(2)	8(2)	20(8)
Trigonometry	1(1)	-	3(1)	4(1)	8(3)
Coordinate Geometry	-	4(2)	6(2)	-	10(4)
Probability	1(1)	2(1)	3(1)	-	6(3)
TOTAL	10(10)	16(8)	30(10)	24(6)	80(34)

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Sample Question Paper
Mathematics (Code-041)
Class X, SA-II

Time: 3 hours.

M.M.: 80

General Instructions

1. All questions are compulsory.
2. The question paper consists of 34 questions divided into four sections A, B, C and D.
3. Section A contains 10 questions of 1 mark each, which are multiple choice type questions, Section B contains 8 questions of 2 marks each, Section C contains 10 questions of 3 marks each, Section D contains 6 questions of 4 marks each.
4. There is no overall choice in the paper. However, internal choice is provided in one question of 2 marks, 3 questions of 3 marks and two questions of 4 marks.
5. Use of calculators is not permitted.

SECTION-A

Q1- which of the following equation has sum of its roots as 5

- (a) $x^2+5x+3=0$ (b) $x^2-5x+3=0$ (c) $\sqrt{2}x^2 - \frac{5}{\sqrt{2}}x + 1=0$ (d) $5x^2 - 10x + 5=0$

Q2- The sum of 5 even multiples of 3 is

- (a) 90 (b) 75 (c) 84 (d) 80

Q3—What is the length of longest chord of the circle of radius 3 cm

- (a) 3 (b) 6 (c) 1.5 (d) 5

Q4—Two concentric circle of radius 10 cm and 6 cm Find the length of the chord of longer circle which is tangent to other circle

- (a) 8cm (b) 3cm (c) 16 cm (d) 5cm

Q5- If two tangents are inclined at angle 60° are drawn to a circle of radius 3 cm the length of each tangent is

- (a) $\frac{3}{2}\sqrt{3}$ cm (b) 6cm (c) 3 cm (d) $3\sqrt{3}$ cm

Q6—If the angle between two radii of circle is 120° the angle between the tangents at the ends of radii is

- (a) 90° (b) 60° (c) 180° (d) 120°

Q7—A funnel is the combination of

- (a) A cone and cylinder (b) frustum of cone and cylinder (c) hemisphere and cylinder
(d) a hemisphere and a cone

Q8—The area of the circle that can be inscribed in a square of side 8 cm

- (a) $16\pi\text{cm}^2$ (b) $8\pi\text{cm}^2$ (c) $4\pi\text{cm}^2$ (d) 64cm^2

Q9—The angle of elevation of sun, when shadow of the pole 3h meter height is $\sqrt{3}h$ m is

- (a) 60° (b) 30° (c) 45° (d) 90°

Q10—If the probability of an event is x , the probability of its complementary event will be

- (a) $x-1$ (b) x (c) $1-x$ (d) $1-\frac{1}{x}$

SECTION –B

Q11- Find the roots of quadratic equation $2x^2 - \sqrt{5}x - 2=0$ using quadratic formula

Q12—find the value of x if $3x-4, 4x-7, 7x-3$ are in A.P.

Q13-Prove that tangents drawn at the ends of a diameter of a circle are parallel

Q14—A circle inscribed in a square, if the area of the square is 49cm^2 . find the circumference of the circle ?

Q15—How many cuboids of 3cm^3 each are melted to form a cuboid of 81m^3 ?

Q16—In fig , P and Q are points of trisection .Find the co-ordinates of P and Q



Q17—Show that the points A(-1 ,0) B (3,1) C(2,2) and D (-2,2) are vertices of parallelogram.

Q18- A die is thrown once. The probability of getting a prime number is $\frac{2}{3}$ Is it true?

OR

The probability of an event is 50% Is it true? Explain with example.

SECTION-C

Q19-Find the roots of the equation $\frac{63}{x} + \frac{72}{x+6} = 3$

OR

In the centre of rectangular lawn of dimensions 50m X 40m , a rectangular pond is constructed so that ,the area of grass surrounding the pond is 1184 m^2 Find the length and breadth of the pond .

Q20—Find the number of terms from 100 --- 300 which are multiple of 3 but not a multiple of 6

Q21-If a hexagon ABCDEF circumscribe a circle. Prove that $AB+CD+EF=BC+DE+FA$

OR

From an external point B of a circle with centre O two tangents BC and BD are drawn such that $\angle DBC=120^\circ$.Prove that $BC +BD = BO$

Q22—Draw a ΔABC such that $BC=6\text{cm}$ $AB=5\text{cm}$ $\angle ABC = 60^\circ$ then construct a triangle whose side is $\frac{4}{3}$ times corresponding sides of ΔABC

Q23—AB is the diameter of the circle $AC= 6\text{cm}$ and $BC= 8\text{cm}$.Find the area of the shaded region.

Q24—Three cubes of a metal whose edges are in ratio 3:4:5 are melted and converted into a single cube whose diagonal is $12\sqrt{3}$ cm. Find the edges of these cubes.

Q25—A ladder 15m long just reaches the top of vertical wall. If ladder makes an angle of 60° with the wall, find the height of the wall.

Q26—Find the area of Δ formed by vertices $(a, b+c)$, $(b, c+a)$ and $(c, a+b)$

Q27—Name the type of quadrilateral formed by the points $(1,7)$, $(4,2)$, $(-1,-1)$ and $(-4,4)$ are in order

Q28—A card contains cards numbered 1 to 100. One card is drawn at random. Find the probability that

- (a) It is multiple of 3 but not multiple of 9
- (b) A perfect square
- (c) A perfect cube

SECTION-D

Q29—Had Vikram scored 10 more marks in his mathematics test out of 30 marks, 9 times these marks would have been the square of his actual marks. How many marks did he get in this test?

OR

Find two consecutive positive integers, sum of whose squares is 290

Q30—Yasmeen saves Rs 32 during the first month, Rs 36 in the second month and Rs 40 in the third month. If she continues to save in this manner, in how many months she saves Rs 2000?

Q31—Prove that the length of tangents drawn from an external point to a circle are equal

Q32—The rain water from a roof of dimensions 22m x 20m drains into a cylindrical vessel having a diameter of base 2m and height 3.5m. If the rain water collected from the roof just fills the cylindrical vessel, then find the rainfall in cm?

OR

From a solid cube of side 7cm, a conical cavity of height 7cm and radius 3cm is hollowed out. Find the volume of the remaining solid?

Q33—A cone of height 10cm is cut off at a height of 8cm to obtain a smaller cone of height 2cm. What % of the original volume of the cone is left behind?

Q34—From the top of a tower h m high, the angle of depression of two objects, which are in the line with the foot of the tower, are α and β ($\beta > \alpha$). Find the distance between the two objects?

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