

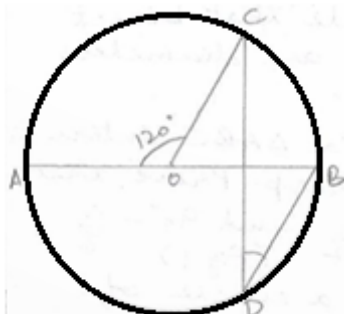
Name:**Class: IX****Subject: Mathematics****Date:****Roll No.**

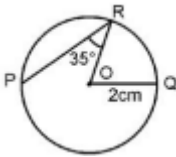
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Invigilator's Sign.**Session: 2021-22****Time allowed: 2 Hours****Maximum Marks: 40****SET – A****SUBJECT CODE-041****General Instructions:**

1. The question paper consists of 21 questions divided into 4 sections A, B, C and D
2. All questions are compulsory.
3. Section A comprises of 10 MCQ's of 1 mark each.
4. Section B comprises of 5 questions of 2 marks each.
5. Section C comprises of 4 questions of 3 marks each.
6. Section D comprises of 2 questions of 4 marks each.
7. There is no negative marking.
8. Use of calculator is not allowed.

| SECTION A | | |
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| Section A consists of 10 questions of 1 mark each. | | |
| Q.NO | | Marks |
| 1. | The line segment that joins two distinct points of a circle is a) secant b) tangent c) chord d) diameter | 1 |
| 2. | The value of $p(t) = 2+t+2t^2-t^3$ when $t=0$ is a) 2 b) 1 c) 4 d) 0 | 1 |
| 3. | A binomial of degree 20 in the following a) $20x + 1$ b) $\frac{x}{20} + 1$ c) $x^{20} + 1$ d) $20x^2 + 2$ | 1 |
| 4. | What is the relation of diameter with initial radius, if the radius of a circle is reduced by one fourth. a) $d = 2r$ b) $d = \frac{r}{2}$ c) $d = 4r$ d) $d = \frac{r}{4}$ | 1 |
| 5. | If diagonals of a quadrilateral are equal and bisect each other at right angles, then it is a : a) parallelogram b) trapezium c) square d) rhombus | 1 |
| 6. | If angles A, B, C and D of the quadrilateral ABCD, taken in order are in the ratio 3:7:6:4, then ABCD is a a) kite b) rhombus c) parallelogram d) trapezium | 1 |

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|--|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------|---|---|---|----|----|----|----|---|--|
| 7. | The radius of a spherical balloon increases from 7cm to 14cm as air is being pumped into it. The ratio of surface area of the balloon in the two cases is: a) 4 : 1 b) 1 : 4 c) 3 : 1 d) 1 : 3 | 1 | | | | | | | | | | | | | | | | | | |
| 8. | Cards are marked with numbers 1 to 25 are placed in the box and mixed thoroughly. One card is drawn at random from the box. What is the probability of getting a multiple of 5. a) 1 b) 0 c) $\frac{1}{5}$ d) $\frac{2}{5}$ | 1 | | | | | | | | | | | | | | | | | | |
| 9. | Cards are marked with numbers 1 to 25 are placed in the box and mixed thoroughly. One card is drawn at random from the box. What is the probability of getting a number divisible by 7. a) $\frac{8}{25}$ b) $\frac{9}{25}$ c) $\frac{6}{25}$ d) $\frac{3}{25}$ | 1 | | | | | | | | | | | | | | | | | | |
| 10. | The curved surface area of a sphere of diameter 14cm is: a) 616 cm^2 b) 940 cm^2 c) 842 cm^2 d) 840 cm^2 | 1 | | | | | | | | | | | | | | | | | | |
| SECTION B consist of 5 questions of 2 marks each. | | | | | | | | | | | | | | | | | | | | |
| 11. | If an angle of a parallelogram is two-third of its adjacent angle, then find the smallest angle of the parallelogram. | 2 | | | | | | | | | | | | | | | | | | |
| 12. | Factorise : $3x^2 + 27y^2 + z^2 - 18xy + 6\sqrt{3}yz - 2\sqrt{3}zx$ | 2 | | | | | | | | | | | | | | | | | | |
| 13. | In the given figure, $\angle AOC = 120^\circ$, find $\angle BDC$.  | 2 | | | | | | | | | | | | | | | | | | |
| 14. | Three cubes each of 5 cm edge are joined end to end. Find the surface area of the resulting cuboid. | 2 | | | | | | | | | | | | | | | | | | |
| 15. | A batsman's score in 80 ODI's is as follows:- <table border="1" data-bbox="177 1883 1402 1957"><tr><td>Scores</td><td>20 - 29</td><td>30 - 39</td><td>40 - 49</td><td>50 - 59</td><td>60 - 69</td><td>70 - 79</td><td>80 - 89</td><td>90 - 99</td></tr><tr><td>No of matches</td><td>1</td><td>1</td><td>8</td><td>13</td><td>20</td><td>22</td><td>12</td><td>3</td></tr></table> What is the probability that the batsman will score (in the next month) a) atleast 70 runs b) 40 – 69 runs | Scores | 20 - 29 | 30 - 39 | 40 - 49 | 50 - 59 | 60 - 69 | 70 - 79 | 80 - 89 | 90 - 99 | No of matches | 1 | 1 | 8 | 13 | 20 | 22 | 12 | 3 | |
| Scores | 20 - 29 | 30 - 39 | 40 - 49 | 50 - 59 | 60 - 69 | 70 - 79 | 80 - 89 | 90 - 99 | | | | | | | | | | | | |
| No of matches | 1 | 1 | 8 | 13 | 20 | 22 | 12 | 3 | | | | | | | | | | | | |

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| | SECTION C consists of 4 questions of 3 marks each. | |
| 16. | <p>In the given figure O is the centre of the circle. The distance between P and Q is 4cm. Find the $\angle ROQ$.</p>  | 3 |
| 17. | Construct a ΔABC , in which base $BC = 3\text{cm}$, $\angle B = 30^\circ$ and $AB + AC = 5.2\text{ cm}$. | 3 |
| 18. | The ratio of the curved surface area to the total surface area of a right circular cylinder is 1:3. Find the volume of the cylinder if its total surface area is 1848 cm^2 . | 3 |
| 19. | D, E and F are respectively the mid points of the sides AB, BC and CA of a triangle ABC. Prove that by joining these mid-points D,E and F, the triangles ABC is divided into four congruent triangles. | 3 |
| | SECTION D consists of 2 questions of 4 marks each. | |
| 20. | <p>A heap of wheat is in the form of a cone of diameter 9 m and height 3.5 m. Find its volume. How much canvas cloth is required to just cover the heap? (Use $\pi = 3.14$)</p> | 4 |
| 21. | <p>a) Find the remainder when $3x^3 - 6x^2 + 3x - \frac{7}{9}$ is divisible by $3x - 4$.</p> <p>b) Simplify: $\sqrt{2a^2 + 2\sqrt{6}ab + 3b^2}$</p> | 2+2 |