|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | |
|  |  | **SUMMATIVE ASSESSMENT – II**  **MATHEMATICS**  **Class – X**    **Time allowed : 3 hours Maximum Marks : 90**  **General Instructions :**  (i) All questions are **compulsory**.  (ii) The question paper consists of **31**questions divided into four **sections A, B, C** and **D**. **Section-A** comprises of **4** questions of **1 mark** each, **Section-B** comprises of **6** questions of **2 marks** each, **Section-C** comprises of **10** questions of **3 marks** each and **Section-D** comprises of **11** questions of **4 marks** each.  (iii) There is no overall choice.  (iv) Use of calculator is not permitted. |  |
|  |  | **SECTION-A**  Question numbers **1** to **4** carry **one** mark each. |  |
|  | 1 | Find the missing terms, if following are in A.P. :  2, , 26,  | 1 |
|  | 2 | A tower stands near an airport. The angle of elevation  of the tower from a point on the ground is such that its tangent is . Find the height of the tower, if the distance of the observer from the tower is 120 metres. | 1 |
|  | 3 | Dimpi and Vani draws one ball each from a bag containing 2 red and 3 green balls. Dimpi draws a red ball first which is not put back, what is the probability that Vani who draws next also gets a red ball. | 1 |
|  | 4 | How can you show using concept of area that three points P, Q and R whose coordinates are given are collinear ? | 1 |
|  |  | **SECTION-B**  Question numbers **5** to **10** carry **two** marks each. |  |
|  | 5 | The sum of 5th and 7th terms of an AP is 52 and the 10th term is 46. Find the common difference. | 2 |
|  | 6 | A child purchases a number of notebooks for ` 80. If he had purchasedfour more notebooks for the same amount from the other bookseller, then anotebook would have cost ` 1 less. Represent the above situation in theform of a quadratic equation. | 2 |
|  | 7 | If PA and PB are two tangents drawn to a circle with centre O, from an external point P such that PA2.8 cm and ∠APB60. Find the length of chord AB. | 2 |
|  | 8 | Geometrically obtain the point P on the line segment AB 7cm such that | 2 |
|  | 9 | Draw a circle of radius 5 cm. From a point 8 cm away from its centre, construet a pair of tangents to the circle. | 2 |
|  | 10 | Three solid cubes of a metal whose edges are in the rario 3 : 4 : 5 are melted and converted into a single cube whose diagonal is . Find the edges of the three cubes. | 2 |
|  |  | **SECTION-C**  Question numbers **11** to **20** carry **3** marks each. |  |
|  | 11 | Find the sum of all the two digit numbers which are either multiples of 2 or 3. | 3 |
|  | 12 | The sum of first n natural numbers is given by the relation S. Find n, if the sum is 210. | 3 |
|  | 13 | In the given figure, OP is equal to the diameter of a circle with centre O and PA and PB are tangents. Prove that ABP is an equilateral triangle.  Untitled art 1 | 3 |
|  | 14 | From the top of a 7 m 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. | 3 |
|  | 15 | A pair of dice is thrown once. What is the probability of getting the number 4 on one die at least ? | 3 |
|  | 16 | how that the points A(5, 1), B(8, 3), C(4, 0) and D(1, 4) are the vertices of a rhombus. | 3 |
|  | 17 | f the distance of P(*x*, *y*) from A(6, 2) and B(2, 6) are equal, prove that *y*2*x*. | 3 |
|  | 18 | A circus tent is made up using two different coloured cloth material. Red coloured material is used to make cylindrical part upto a height of 3 m and green coloured material to make conical part above it. If the diameter of the base is 105 m and slant height of the conical part is 53 m, find the red coloured material and green coloured material required [Assuming no stiching margins]. | 3 |
|  | 19 | 2  In the figure, two concentric circles with centre O have radii 7 cm and 14 cm. If  AOC120, find the area of shaded region. | 3 |
|  | 20 | ABCD is a trapezium with ABDC, AB18 cm, DC32 cm and distance between AB and DC14 cm. If arcs of equal radii 7 cm with centres A, B, C and D have been drawn, then find the area of the region of the trapezium which is not the part of the sectors drawn. | 3 |
|  |  | **SECTION-D**  Question numbers **21** to **31** carry **4** marks each. |  |
|  | 21 | The sum of first 9 terms of an AP is 351 and the sum of its first 20 terms is 1770. Find the 11th term. | 4 |
|  | 22 | If the roots of the equation (a2b2)*x*22(acbd)*x*(c2d2)0 are equal, then prove that . | 4 |
|  | 23 | Solve :  ; *y* ≠ 3, 4. | 4 |
|  | 24 | Prove that tangent at any point of a circle is perpendicular to the radius through the point of contact. | 4 |
|  | 25 | Construct a right triangle whose hypotenuse and one side measures 10 cm and 8 cm respectively. Then construct another triangle whose sides are times the corresponding sides of this triangle. | 4 |
|  | 26 | A person standing between two posts, finds that the angle subtended at his eyes by the tops of the posts is a right angle. If the heights of the two posts are two times and four times the height of the person and the distance between the two posts is equal to the length of the longer post, find the ratio of the distances of the person from the shorter to the longer post. | 4 |
|  | 27 | In a hospital, there are 200 beds for patients. Of these, 120 are occupied by males and remaining by females. 20% of the males and 40% of the females are suffering from malaria and rest of them from dengue. If a patient is selected at random, find the probability that he/she is a  (A) female patient.  (B) male patient.  (C) male patient suffering from malaria.  (D) female patient suffering from dengue. | 4 |
|  | 28 | If (5, 7), (4, 5), (1, 6) and (4, 5) are the vertices of a quadrilateral, taken in order, then find the area of the quadrilateral. | 4 |
|  | 29 | A cylindrical pipe has inner diameter of 7 cm and water flows through it at 192.5 litres per minute. Find the rate of flow in km per hour. (Use ) | 4 |
|  | 30 | An oval shaped meeting table, made of wood, has dimensions of its top as shown in the figure. Find the cost of polishing it at ` 5.75 per sq.m. .  1852.jpg | 4 |
|  | 31 | A night camp was organised for class IX students for two days and their accommodation was planned in tents. Each tent is in the shape of a cylinder surmounted by a hemispherical roof. If the height and diameter of the cylindrical part are. 1.4 m and 5 m respectively. Find the area of the canvas used for making such a tent. Also, find the cost of the canvas of the tent at the rate of ` 350per m2. How these type of camping are helpful for a child in her overall development ? | 4 |
|  |  |  |  |
|  |  | -o0o0o0o- |  |