

QB365
Model Question Paper - 2
10th Standard CBSE

Maths

Reg.No. :

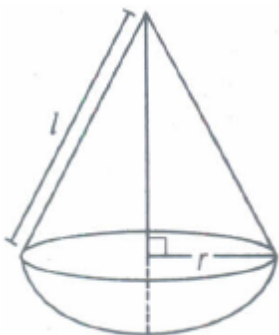
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Time : 02:00:00 Hrs

Total Marks : 100

Section - A

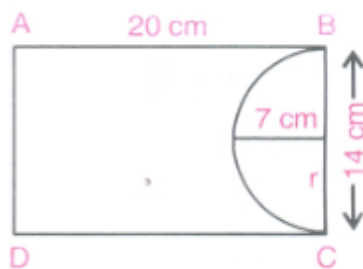
- 1) A pair of fair dice is thrown and one die shows a 4. The probability that the other die shows 5 is..... 1
- 2) Probability of an event E + Probability of the event 'not E' = 1
- 3) What is the probability that a non-leap year has 53 Mondays? 1
- 4) A die is thrown once. What is the probability of getting a prime number. 1
- 5) The abscissa and ordinate of a point taken together is known as of a point. 1
- 6) Three points A, B and C are collinear, if any one of the following takes place: 1
 - (i) $AB + \dots = AC$
- 7) Three points A, B and C are collinear, if any one of the following takes place: 1
 - (iv) $\text{ar}(\Delta ABC) = \dots$
- 8) Find the value of a, for which point $P\left(\frac{a}{3}, 2\right)$ is the midpoint of the line segment joining the points Q(-5,4) and R(-1,0) 1
- 9) If the points A(x, 2), B(-3, -4), C(7, -5) are collinear, then find the value of x. 1
- 10) Angle described by the minute hand in one minute is 1
- 11) If the ratio of the circumferences of two circles is 3 : 1, then find the ratio of their areas. 1
- 12) The sum of circumference and the radius of a circle is 51 cm. Find the radius of circle. 1
- 13) The difference between the circumference and the radius of a circle is 37 cm. Find the area of the circle 1
- 14) What is the diameter of a circle whose area is equal to the sum of the areas of two circles of radii 40 cm and 9 cm? 1
- 15) In given fig., O is the centre of a circle. If the area of the sector OAPB is $\frac{5}{36}$ times the area of the circle, then find the value of x. 1
- 16) Surface area of given figure = $\pi r(\dots + \dots)$ 1



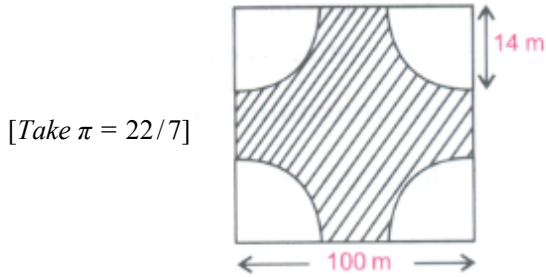
- 17) Explain why 13233343563715 is a composite number? 1
- 18) a and b are two positive integers such that the least prime factor of a is 3 and the least prime factor of b is 5. 1
Then calculate the least prime factor of (a + b).
- 19) Find the smallest positive rational number by which $\frac{1}{7}$ should be multiplied so that its decimal expansion terminates after 2 places of decimal. 1
- 20) The decimal representation of $\frac{6}{1250}$ will terminate 1250 after how many places of decimal? 1

Section - B

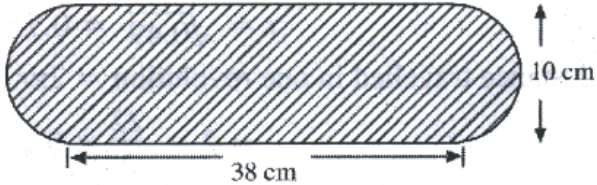
- 21) A bag contains lemon flavoured candies only. Malini takes out one candy without looking into the bag. What is the probability that she takes out
(i) an orange flavoured candy? (ii) a lemon flavoured candy? 2
- 22) 12 defective pens are accidentally mixed with 132 good ones. It is not possible to just look at a pen and tell whether or not it is defective. One pen is taken out at random from this lot. Determine the probability that the pen taken out is a good one. 2
- 23) A bag contains 12 marbles out of which y are white. 2
(i) If one marble is drawn at random from the bag, what is the probability that it will be white marble?
(ii) If 6 more white marbles are put in the bag, the probability of drawing a white marble will double than in part (i), find y.
- 24) Arjun draws a card from a well shuffled deck of 52 cards. Find the probability of getting: 2
(i) a jack of red suit
(ii) '5' or '9' of club
(iii) a diamond card
(iv) '2' or '3' or '5' of black suit
- 25) In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. Find: 2
(i) Length of the arc.
(ii) Area of the sector formed by the arc.
(iii) Area of the segment formed by the corresponding chord.
- 26) A paper is in the form of a rectangle ABCD in which AB = 20 cm and BC = 14 cm. A semicircular portion with BC as diameter is cut off. Find the area of the remaining part. [Use $\pi = \frac{22}{7}$] 2



- 27) A square park has each side of 100 m. At each corner of the park, there is a flower bed in the form of a quadrant of radius 14 m as shown in the given figure. Find the area of the remaining part of the park. 2



- 28) Find the area of the flower bed (with semicircular ends) as shown in the given figure. 2



- 29) If the perimeter of a protractor is 72 cm, calculate its area. (Use $\pi = \frac{22}{7}$) 2

- 30) A medicine capsule is in the shape of a cylinder with two hemispheres stuck to each of its ends (see figure). The length of the entire capsule is 14 mm and the diameter of the capsule 5 mm. Find its surface area. 2

- 31) A toy is in the form of a right circular cylinder with a hemisphere on one end and a cone on the other. The height and radius of base of the cylindrical part are 13 cm and 5 cm respectively. The radius of hemisphere and base of the conical part are same as that of the cylinder. Calculate the surface area and volume of the toy, if the height of the cone is 12 cm. 2

- 32) A sphere of diameter 6 cm is dropped in a right circular cylindrical vessel partly filled with water. The diameter of the cylindrical vessel is 12 cm. If the sphere is completely submerged in water, by how much will the level of water rise in the cylindrical vessel? 2

- 33) In fig from the top of a solid cone of height 12 cm and base radius 6 cm, a cone of height 4 cm is removed by a plane parallel to the base. Find the total surface area of the remaining solid. 2

$$\left[\text{Use } \pi = \frac{22}{7} \text{ and } \sqrt{5} = 2.236 \right]$$

- 34) A rational number in its decimal expansion is 327.7081. What can you say about the prime factors of q , when this number is expressed in the form $\frac{p}{q}$? Give reason. 2

- 35) Explain whether $3 \times 12 \times 101 + 4$ is a prime number or a composite number 2

- 36) Show that any positive even integer can be written in the form $6q$, $6q + 2$ or $6q + 4$, where q is an integer 2

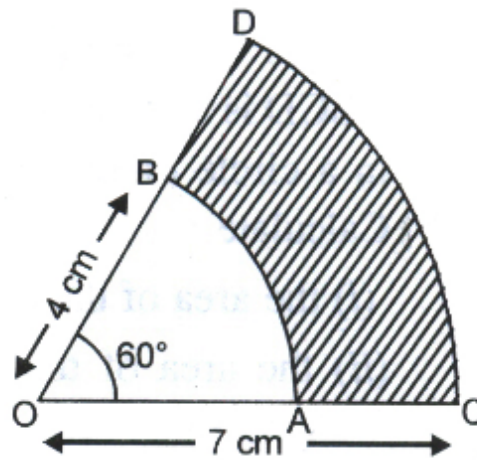
- 37) The length, breadth and height of a room are 8 m 50 cm, 6 m 25 cm and 4 m 75 cm respectively. Find the length of the longest rod that can measure the dimensions of the room exactly. 2

- 38) Two customers shyam and Exta are visiting a particular shop in the same week (Tuesday to Saturday). Each is equally likely to visit the shop on any day. What is the probability that both will visit the shop on:
- The same
 - Consecutive day?
- 39) A number x is selected at random from the numbers 1, 2, 3 and 4. Another number y is selected at random from the numbers 1, 4, 9 and 16. Find the probability that product of x and y is less than 16.
- 40) The points $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ are the vertices of $\triangle ABC$.
- The median from A meets BC at D . Find the coordinates of the point D .
 - Find the coordinates of the points P on AD such that $AP:PD=2:1$
 - Find the coordinates of the points Q and R on medians BE and CF , respectively such that $BQ:QE=2:1$ and $CR:RF=2:1$
 - What are the coordinates of the centroid of the triangle ABC ?

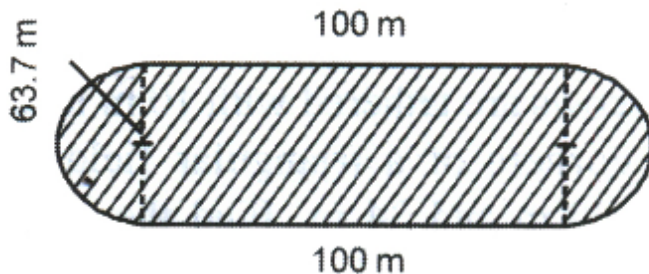
Section - C

- 41) The base QR of an equilateral triangle PQR lies on x -axis. The co-ordinates of point Q are $(-4, 0)$ and the origin is the mid-point of the base. Find the co-ordinates of the point P and R .
- 42) The vertices of quadrilateral $ABCD$ are $A(5, -1)$, $B(8, 3)$, $C(4, 0)$ and $D(1, -4)$. Prove that $ABCD$ is a rhombus.
- 43) If $A(3, 4)$, $B(-2, 3)$ and $C(5, 6)$ are the vertices of a triangle ABC , find the length of the median AD from A to BC . Also verify that area of $\triangle ABD$ is equal to area of $\triangle ACD$.
- 44)

Find the area of the shaded region



- 45) The diagram shows the inner boundary of a running track consisting of a rectangle with semicircular ends. The semicircular ends have a diameter of 63.7 m. Calculate the area covered by the track.



- 46) In fig., two circular flower beds have been shown on two sides of a square lawn $ABCD$ of side 56 m. If the centre of each circular flower bed is the point of intersection O of the diagonals of the square lawn, find the sum of the areas of the lawn and flower beds.

- 47) A child prepares a poster on "save water" on a square sheet whose each side measures 50 cm. At each corner of the sheet, she draws a quadrant of radius 15 cm in which she shows the ways to save water. At the centre, she draws a circle of diameter 21 cm and writes a slogan save water in it. Find the area of the remaining sheet. Write the value depicted. 5
- 48) A fruit vendor has 990 apples and 945 oranges. He packs them into baskets. Each basket contains only one of the two fruits but in equal number. Find the number of fruits to be put in each basket in order to have minimum number of baskets. 5

