

SUMMATIVE ASSESSMENT-II, 2017

MATHEMATICS

Time : 3 hrs.

Class - X

M.M. : 90

Date – 10.03.2017 (Friday)

Name of the student _____ Section _____

General Instructions:

- All questions are **compulsory**.
- 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.
- There is **no overall choice**.
- Use of **calculator** is **not permitted**.
- **Please check that this question paper contains 03 printed pages.**

SECTION-A

Question numbers 1 to 4 carry one mark each.

- Q.1** Check whether $x(2x + 3) = x^2 + 1$ is a quadratic equation. (1)
- Q.2** If the ratio of the circumference of two circles is 3:1, then find the ratio of their areas. (1)
- Q.3** One card is drawn from a well shuffled deck of 52 playing cards. Find the probability that card drawn is not a red card. (1)
- Q.4** How many tangents can be drawn from an external point to a circle? (1)

SECTION-B

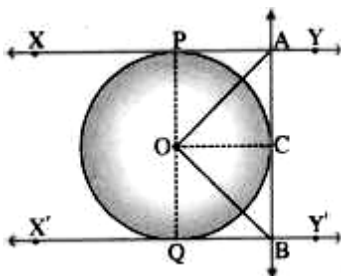
Question numbers 5 to 10 carry two marks each.

- Q.5** The product of two consecutive even natural numbers is 120. Find the numbers. (2)
- Q.6** The seventeenth term of an A.P exceeds its 10th term by 7. Find the common difference. (2)
- Q.7** If $P(E) = 0.150$, then what is the probability of 'not E' ? (2)
- Q.8** A bag contains 5 red balls, 9 blue balls and 6 black balls. If one ball is drawn at random, find the probability that it is - (2)
- a) black ball b) white ball
- Q.9** A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6cm. Find the height of the cylinder. (2)
- Q.10** Two cubes of side 5 cm each are kept together joining edge to edge to form a cuboid. Find the total surface area of the cuboid so formed. (2)

SECTION-C

Question numbers 11 to 20 carry 3 marks each.

- Q.11** If $x^2 + px + 2450$ is a solution of the quadratic equation $x^2 + px + 2450$ and the quadratic equation $x^2 + px + k50$ has equal roots, find the values of p and k . (3)
- Q.12** Find the sum of all odd natural numbers upto 90. (3)
- Q.13** In the given figure two parallel tangents XY and $X'Y'$ touches at the points P and Q respectively of the circle with centre O . (3)



Another tangent AB is drawn parallel to PQ at the point C . Prove that $\angle AOB = 90^\circ$.

- Q.14** Draw a line segment AB of length 7.2 cm. Find a point P on it which divides it in the ratio 4 : 5. (3)
- Q.15** Answer the questions given below. (3)
- (a) What is the probability of a sure event ?
- (b) If the probability of having rain today is 0.71, what is the probability of not having rain ?
- (c) What is the probability of getting a multiple of 7 when a fair die is rolled ?
- Q.16** Show that the triangle formed by the points $A(5, 1)$, $B(23, 2)$ and $C(1, 26)$ is an isosceles triangle. (3)
- Q.17** Find the ratio in which the join of $A(-3, 10)$ and $B(6, -8)$ is divided by $(-1, 6)$. (3)
- Q.18** An umbrella has 8 ribs which are equally spaced. Assuming umbrella to be a flat circle of radius 45 cm, find area between the two consecutive ribs of the umbrella. (3)
- Q.19** A glass is in the shape of a cylinder of radius 7 cm and height 10 cm. Find the volume of juice in litres required to fill 6 such glasses. (Use $\pi = \frac{22}{7}$) (3)
- Q.20** To construct a tangent of length 4 cm from a point P at a distance of 7 cm from the centre of the circle, what radius to the circle be drawn? (3)

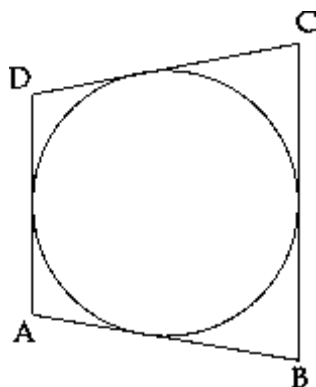
SECTION-D

Question numbers 21 to 31 carry 4 marks each.

- Q.21** Solve for x : (4)

$$\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30} \quad (x \neq -4, 7)$$

- Q.22** Manju started work in 1995 at an annual salary of Rs. 5,000 and received an increment of Rs. 200 each year. In which year did her income reach Rs. 7,000? (4)
- Q.23** How many three digit numbers are divisible by 7 ? (4)
- Q.24** In the adjoining figure a circle touches all the four sides of a quadrilateral ABCD whose sides are AB=6 cm, BC=7 cm and CD=4 cm. Find perimeter of ABCD. (4)



- Q.25** Construct a ΔABC with BC=6 cm, AB = 4 cm and AC = 5 cm. Construct another triangle similar to ΔABC such that its sides are $\frac{3}{4}$ times the corresponding sides of ΔABC . (4)
- Q.26** Two pillars of equal heights stand on either side of a road, which is 200 m wide. The angles of elevation of the top of the pillars are 60° and 30° at a point on the road between the pillars. Find the position of the point between the pillars and height of each pillar. (4)
- Q.27** A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle of 30° with the ground. The distance between the foot of the tree to the point where the top touches the ground is 8m. Find the height of the tree. (4)
- Q.28** Find the area of a quadrilateral ABCD whose vertices are A(1, 0), B(5, 3), C(2, 7) and D(22, 4). Also, find the lengths of the diagonals AC and BD. (4)
- Q.29** Ramu rides a bicycle having a poster "SAVE EARTH". His bicycle makes 5000 revolutions in moving 11 km. Find diameter of the wheel. What value is depicted by Ramu ? (4)
- Q.30** A chord of a circle of radius 14 cm subtends a right angle at the centre. What is the area of the (a) minor sector (b) major sector? (4)
- Q.31** If the radii of the circular ends of a conical bucket which is 45 cm high, are 28cm and 7cm, find the volume of the bucket. (4)

