

## Section-A

## Objective Type Question

**Q. 1. Choose the correct option and write in your answer book :****5**

(i) If the probability of an event is P, the probability of the complementary event will be-

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

(ii) In a right circular cone, the cross section made by a plane parallel to the base is a-

- (a) circle (b) frustum of the cone  
(c) Sphere (d) Hemisphere

(iii) If perimeter and Area of circle are numerically equal then its radius of circle is-

- (a)  $\pi$  unit (b) 2 unit  
(c) 4 unit (d) 7 unit

(iv) If two tangents TP and TQ. are draw a circle centre O such that  $\angle POQ = 110^\circ$  then  $\angle PTQ = ?$ 

- (a)  $90^\circ$  (b)  $80^\circ$   
(c)  $70^\circ$  (d)  $60^\circ$

(v) A man sitting on the bridge observes a boat in the river whose angle of desperssion is  $45^\circ$ . If the height of the bridge is 15 m then the distance of boat from the bridge is -<http://www.mpboardonline.com>

- (a) 5 m (b) 8 m (c) 10 m (d) 15 m

Ans. (i) c (ii) a (iii) b (iv) c (v) d.

**Q. 2. Fill in the blanks :****5**

(i) The measure of an arc of corresponding sector of circle is called ..... of the arc.

(ii) A circle can have ..... parallel tangents at the most.

(iii) Coordinate of the mid point of  $(x_1, y_1)$  and  $(x_2, y_2)$  are .....

(iv) Two polygons of same number of sides are similar if-

(a) their corresponding angle are ..... and (b) Their corresponding sides are .....

(v) Any number  $p/q$ , Where P and Q. are co-prime integers and Q. [! is called .....Ans. (i) length (ii) two and only two (iii)  $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$ 

(iv) (a) equal (b) proportional (v) rational number.

**Q. 3. Write True of False :****5**(i) The value of x in  $x(x - 1)$  are 0 and 1

(ii) There will be only one zero in a quadratic equation.

(iii) The pair of linear equations  $x = a$  and  $y = b$  represent two parallel lines.

(iv) The difference of any two terms of an AP is common difference.

(v) In the calculation of the values of central tendencies the class intervals must be continuous.

Ans. (i) True (ii) False (iii) False (iv) False (v) True.

**Q. 4. Give answer in one word/sentences :**

**5**

(i) What is conclusion of  $p(x) = g(x) \times q(x+r(x))$ .

(ii) What the type of equation is called whose graph is a straight line.

(iii) In a quadratic equation  $ax^2 + bx+c$ , what the term  $(b^2 - 4ac)$  is called.

(iv) What is the next term 5, 10, 15 .....

(v) What the score dividing the entire frequency distribution in two equal points is called?

Ans. (i) Division algorithm (ii) Linear equation (ii) discriminate (v) 20 (v) Medium class.

**Q. 5. Match the columns :**

**5**

**Column 'A'**

**Column 'B'**

(i)  $\cot 41^\circ$

(a)  $\sqrt{13}/2$

(ii)  $\tan^2 \theta$

(b) 1

(iii)  $\cos^2 \theta$

(c)  $\tan 49^\circ$

(iv)  $\sin 60^\circ$

(d)  $\sec^2 \theta - 1$

(v)  $\sin^2 25 + \cos^2 25$

(e)  $1 - \sin^2 \theta$

Ans. (i) c (ii) d (iii) e (iv) a (v) b

**Section-B**

**Very short type question**

Q. 6. Given that  $HCF(306, 657)=9$ , find  $LCM(306, 657)$ .

**2**

Or

There is a circular path around a sports field. Sonia takes 18 minutes to derive one round of the field, while Ravi takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they again at the starting point?

Q. 7. If any graph  $y = P(x)$ , intersect two point of x-axis then find the no. of zeroes of  $P(x)$ .

**2**

Or

Find the sum and product of zeroes in  $x^2 + 4x + 6$ .

Q. 8. Find the distance between (0, 0) and (4, 3)

**2**

Or

Find the mid point of points (5,3) and (3,6).

Q. 9. A dice thrown once. Find the probability gettings prime number.

**2**

Or

One card is drawn from a well shuffled deck of 52 cards calculate the probability that the card be an ace.

Q. 10. A bag contains 3 red balls and 5 black balls. Ball is drawn at random from the bag what is the probability that the ball drawn is red?

**2**

Or

If  $P(E) = 0.05$ , what is the probability of 'not E'

**Short Answer type question**

Q. 11. If  $11 \cot A = 8$  then find the value of  $\sin A$  and  $\sec A$ . 3

Or

If  $\tan 2A = \cot (A-18^\circ)$ , where  $2A$  is an acute angle, find the value of  $A$ .

Q. 12. Check whether  $(5, -2)$ ,  $(6, 4)$  and  $(7, 2)$  are the vertices of an isosceles triangle. 3

Or

Find the ratio in which the line segment joining the points  $(-3, 10)$  and  $(6, 8)$  is divided by  $(-1, 6)$ .

Q. 13. The length of a tangent from a point  $A$  at distance 5 cm from the centre of the circle is 4. Find the radius of circle. 3

Or

The length of tangents drawn from an external point to a circle are equal.

Q. 14. Find the area of a quadrant of a circle, circumference 22 cm. 3

Or

The length of the minute hand of a clock is 14 cm. Find the area swept by the minute hand in 5 minutes.

**Long Answer type question.**

Q. 15. Use Euclid's division lemma to show that the square of any positive integer is either of the form  $3m$  or  $3m + 1$  for some integer  $m$ . <http://www.mpboardonline.com>

4

Or

Explain why  $7 \times 11 \times 13 + 13$  and  $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$  are composite numbers.

Q. 16. If the zeroes of the polynomial  $x^3 - 3x^2 + x + 1$  are  $a - b$ ,  $a$  and  $a + b$ , find  $a$  and  $b$ . 4

Or

If the polynomial  $x^4 - 6x^3 + 16x^2 - 25x + 10$  is divided by another polynomial  $x^2 - 2x + k$ , the remainder comes out to be  $x + a$ , find  $k$  and  $a$ .

Q. 17. Solve the linear equation  $x + y = 5$ ,  $2x - 3y = 4$  by the elimination method.

Or

Meena went to a bank to withdraw Rs. 2000. She asked the cashier to give her Rs. 50 and 100 notes only. Meena got Rs. 25 notes in all. Find how many notes of Rs. 50 & Rs. 100 she received.

Q. 18. Which term of the A.P. 3, 8, 13, 18, ..... is 78? 4

Or

Find the sum of 40 positive integers which divide by 6.

Q. 19. A tree breaks due to a storm and the broken part bends so that the top of the tree touches the ground making an angle  $30^\circ$  with it. 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

Or

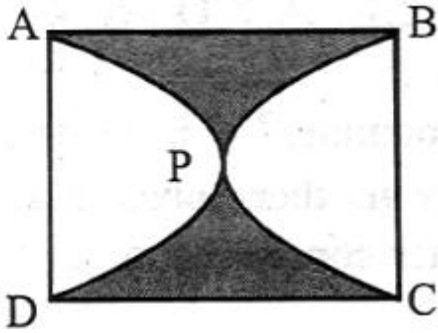
As observed from the top of a 75m tall lighthouse, the angles of depression of two ships are  $30^\circ$  and  $45^\circ$ . If one ship is exactly behind the other on the same side of the lighthouse, find the distance between the two ships.

Q. 20. State and prove Pythagoras' theorem. 4

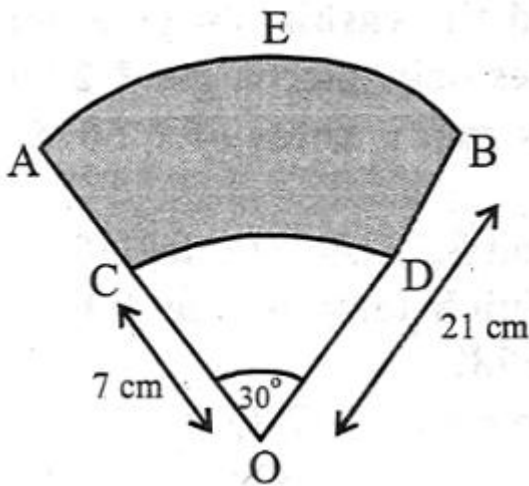
Or

State and prove Thales' Theorem.

Q. 21. Find the area of there shaded region in the figure of ABCD is a square of side 14 cm and APD and BPC are semi circle. 4



Or  
 AB and CD are respectively areas of two cocentric circles of radii 21cm and 7cm. and centre O (see figure) If  $\angle AOB = 30^\circ$ , find the area of the shaded regionion.



**Essay type question**

Q. 22. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train. 5

Or  
 The Find the roots of  $2x^2 - 7x + 3 = 0$  by perfect square method.

Q. 23. Prove that  $\sqrt{\frac{1 - \cos \theta}{1 + \cos \theta}} = \operatorname{cosec} \theta - \cot \theta$  5

Or  
 Prove that  $\frac{1 + \sec A}{\sec A} = \frac{\sin^2 A}{1 - \cos A}$

Q. 24. Draw a triangle ABC with side BD = 7 cm,  $\angle B = 45^\circ$ ,  $\angle A = 105^\circ$ . Then Cosnstruct a triangle whose sides are  $\frac{4}{3}$  times the corresponding sides of AABC. <http://www.mpboardonline.com> 5

Or  
 Draw a circle of radius 6 cm from a point 10 cm away from its centre, construct the pair of tangents to the circle and measure the lengths.

Q. 25. Two cubes each of volume  $64 \text{ cm}^3$  are joined end to end. Find the surface area of the resulting cuboid.

Or

A drinking glass is in the shape of a cone of height 14 cm. The diameter of its two circular ends are 4 cm and 2 cm find the capacity of the glass,

Q. 26. The distribution below gives the weight of 30 students of a class. Find the medium weight of students.

| Weight (in kg) | Number of students |
|----------------|--------------------|
| 40-45          | 2                  |
| 45-50          | 3                  |
| 50-55          | 8                  |
| 55-60          | 6                  |
| 60-65          | 6                  |
| 65-70          | 3                  |
| 70-75          | 2                  |

Or

The following distribution gives daily income of 50 workers of a factory.

| Daily income (in Rs) | Number of Workers |
|----------------------|-------------------|
| 100-120              | 12                |
| 120-140              | 14                |
| 140-160              | 8                 |
| 160-180              | 6                 |
| 180-200              | 10                |

Convert the distribution above to a less than type cumulative frequency distribution and draw its give.

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