

**PUNJAB BOARD CLASS 10 MATHS (A)
PREVIOUS YEAR QUESTION PAPER- 2017**

Roll No.

04/A

Total No. of Questions : 17]

[Total No. of Printed Pages : 11

X

2037

ਸਲਾਨਾ ਪਰੀਖਿਆ ਪੁਨਾਲੀ

MATHEMATICS

(Morning Session)

Time allowed : Three hours

Maximum marks : 50

(English Version)

- Note :** (i) You must write the subject-code/paper-code **04/A** in the box provided on the title page of your answer-book.
- (ii) Make sure that the answer-book contains 26 pages (including title page) and are properly serialed as soon as you receive it.
- (iii) Question/s attempted after leaving blank page/s in the answer-book would not be evaluated.
- (iv) **All questions are compulsory.**
- (v) In question on construction, make drawing neatly and exactly as per given measurements using geometrical instruments.
- (vi) Use of calculator is not allowed.
- (vii) Log tables can be had from the Centre Superintendent.
- (viii) Question No. 1 each part is of 1 mark each, 2 to 8 are of 2 marks each, 9 to 15 are of 3 marks each and 16 to 17 are of 5 marks each. Out of these there is internal choice in Question Number 5, 6, 7, 11, 14, 15, 16 and 17.

Part-A

This part has questions of 1-1 mark.

1. (i) For which value of p does the pair of equation given below has unique solution

$$4x + py + 8 = 0$$

$$2x + 2y + 2 = 0$$

1

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- (ii) For AP: $\frac{3}{2}, \frac{1}{2}, \frac{-1}{2}, \frac{-3}{2}, \dots$ write the first term 'a' and common difference 'd'. 1
- (iii) Write the definition of Pythagoras theorem. 1
- (iv) Fill in the blank :
..... - $\cot^2 \theta = 1$ 1
- (v) Find the volume of sphere whose radius is 3 cm. 1

Part-B

This part has questions of 2-2 marks.

2. Find the L.C.M and H.C.F of 6 and 20 by prime factorisation method. 2
3. Check whether the first polynomial is a factor of second polynomial by dividing the second polynomial by first polynomial
 $t^2 - 3, 2t^4 + 3t^3 - 2t^2 - 9t - 12$ 2
4. Find such value of k for quadratic equation $kx^2 - 2kx + 6 = 0$ so that they have two equal roots. 2
5. Show that $a_1, a_2, a_3, \dots, a_n$ form an AP where $a_n = 3 + 4n$. 2
or
For AP: 7, 11, 15, 19, Find the sum of first 15 terms. 2
6. The length of a tangent from a point A at distance 5 cm from the centre of the circle is 4 cm. Find the radius of the circle. 2
or
Two concentric circles are of radii 5 cm and 3 cm. Find the length of chord of the larger circle which touches the smaller circle. 2
7. Draw a line segment of length 6.5 cm and divide it in the ratio 3:4 2
or
Draw a circle of radius 4 cm. From a point 7 cm away from a centre construct the pair of Tangent to the circle and measure its length. 2
8. A bag contains 3 red and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is
(i) red
(ii) not red. 2

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Part-C

This part has questions of 3-3 marks.

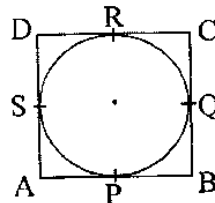
9. The cost of 1 pencil and 3 erasers is ₹ 10 and the cost of 4 pencils and 6 erasers is ₹ 28. Find the cost of 5 pencils and 4 erasers. 3
10. Find the co-ordinates of the points of trisection (i.e. point dividing the three equal parts) of the segment joining the points A (2, -2) and B (-7, 4). 3
11. If $\tan (A+B)=\sqrt{3}$ and $\tan (A-B)=\frac{1}{\sqrt{3}}$; $0^{\circ}<A+B\leq 90^{\circ}$; $A>B$ then find the value of A and B. 3

or

Prove that :

$$\sqrt{\frac{1+\sin A}{1-\sin A}} = \sec A + \tan A ; A < 90^{\circ} \quad 3$$

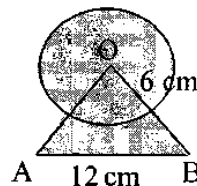
12. Two poles of equal heights are standing opposite each other on either side of the road which is 80 m wide. From a point between them on the road the angles of elevation of top of the poles are 60° and 30° . Find the height of the poles and distance of the point from the poles. 3
13. In the figure given below a quadrilateral ABCD is drawn to circumscribe a circle. Prove that : $AB+CD=AD+BC$



14. In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. Find
(i) The length of the arc
(ii) Area of sector. 3

or

In the figure given below find the area of the shaded region where a circular arc of radius 6 cm has been drawn with vertex O of an equilateral triangle OAB of side 12 cm as centre.



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

Daily Income in ₹	100 – 120	120 – 140	140 – 160	160 – 180	180 – 200
No. of Workers	12	14	8	6	10

Convert the above distribution to a less than type cumulative frequency distribution and draw its ogive. 3

or

A survey conducted on 20 households in a locality by a group of students resulted in the following frequency table for the number of family members in household.

Family Size	1 – 3	3 – 5	5 – 7	7 – 9	9 – 11
No. of family	7	8	2	2	1

Find the mode of this data. 3

Part–D

This part has questions of 5-5 marks.

16. Prove that the ratio of the areas of two similar triangle is equal to the squares of the ratio of their corresponding sides. 5

or

Prove that in a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides. 5

17. A cylindrical bucket 32 cm high and with radius of base, 18 cm, is filled with sand. This bucket is emptied on the ground and conical heap of sand is formed. If the height of the conical heap is 24 cm, find the radius and slant height of the heap. 5

or

A toy is in the form of a cone of radius 3.5 cm mounted on a hemisphere of same radius. The total height of the toy is 15.5 cm. Find the total surface area of the toy. 5