

A-3-X

Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 15

XARJKUT23

9303-X

MATHEMATICS

Time : 3 Hours]

[Maximum Marks : 80

Section-A

1 each

1. The number 3 is :

(A) an even number

(B) a composite number

(C) a prime number

(D) None of these

XARJKUT23-9303-X

A-3-X

Turn Over

2. Zeroes of the quadratic polynomial $x^2 - 2x - 8$ are :

(A) 2, -4

(B) 2, 4

(C) -2, -4

(D) None of these

3. 8th term of an A.P. 10, 7, 4, is :

(A) -11

(B) -10

(C) -8

(D) None of these

(3)

4. Distance between the points (4, 3) and (0, 0) is :

(A) $\sqrt{7}$

(B) 5

(C) 12

(D) None of these

5. If $6x + 3y = C - 3$ and $12x + Cy = C$, has infinitely many solutions, then C is equal to :

(A) 6

(B) 5

(C) 4

(D) None of these

6. Circumference of a semi-circle with radius ' r ' is :

(A) $2\pi r$

(B) πr

(C) πr^2

(D) None of these

7. How many parallel tangents can a circle have ?

(A) 2

(B) 1

(C) Infinite

(D) None of these

8. A card is drawn from a pack of 52 cards. What is the probability of getting a heart ?

(A) $\frac{1}{26}$

(B) $\frac{1}{2}$

(C) $\frac{1}{4}$

(D) None of these

9. $1 - \cos^2 30^\circ$ is equal to :

(A) $-\sin^2 30^\circ$

(B) $\sin^2 30^\circ$

(C) $-\sin^2 60^\circ$

(D) None of these

10. The product of roots of the quadratic equation $\sqrt{5}x^2 + 3x - 5 = 0$ is :

(A) $\sqrt{5}$

(B) $\frac{1}{\sqrt{5}}$

(C) $-\sqrt{5}$

(D) None of these

11. H.C.F. of two prime numbers is (Fill in the blank)

12. The sum of first n natural numbers is $\frac{n(n+1)}{2}$. (True/False)

Or

The next term of the A.P. $\sqrt{27}$, $\sqrt{48}$, $\sqrt{75}$, is $\sqrt{108}$.

(True/False)

13. The value of $\cos \theta$ increases as θ increases. (True/False)

14. All triangles are similar. (isosceles, equilateral)

15. The common point of a tangent to a circle and the circle is called
..... (Fill in the blank)

16. Define Distance Formula.

Or

Define Ordinate of a Point.

17. State Basic Proportionality Theorem.

18. Define Angle of Elevation.

19. What is the probability of sure event ?

20. Write the formula for total surface area of hemisphere.

Section-B

2 each

21. Find the H.C.F. of 510 and 92.

22. A drinking glass is in the shape of a frustum of a cone of height

14 cm. The diameters of its two circular ends are 4 cm and 2 cm.

Find the capacity of the glass.

23. Solve the pair of linear equations :

$$x + y = 5$$

$$2x - 3y = 4$$

by elimination method.

24. Given $15 \cot A = 8$, find $\sin A$ and $\sec A$.

Or

Evaluate :

$$2 \tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$$

25. A bag contains 3 red balls 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 ?

26. A class teacher has the following absentee record of 40 students of a class for the whole term. Find the mean number of days a student was absent :

Number of Days	Number of Students
0-6	11
6-10	10
10-14	7
14-20	4
20-28	4
28-38	3
38-40	1

Section-C

3 each

27. Obtain all other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$.

XARJKUT23-9303-X

A-3-X

Or

Find a quadratic polynomial, the sum and product of whose zeroes are $\sqrt{2}$ and $\frac{1}{3}$, respectively.

28. A fraction becomes $\frac{1}{3}$ when 1 is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to its denominator. Find the fraction.

29 Find the roots of the quadratic equation $2x^2 + x - 6 = 0$ by factorization.

30. Find the 31st term of an A.P. whose 11th term is 38 and the 16th term is 73.

Or

Find the sum of the first 15 multiples of 8.

31. Write all the other trigonometric ratios of $\angle A$ in terms of $\sec A$.
32. Prove that the lengths of tangents drawn from an external point to a circle are equal.

Or

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.

33. Find the area of a quadrant of a circle whose circumference is 22 cm.
34. How many silver coins, 1.75 cm in diameter and of thickness 2 mm, must be melted to form a cuboid of dimensions $5.5 \text{ cm} \times 10 \text{ cm} \times 3.5 \text{ cm}$?

Section-D

4 each

35. 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.

Or

Find the roots of $4x^2 + 3x + 5 = 0$ by the method of completing the square.

36. The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. Prove that the height of the tower is 6 m.

7. Find the area of the quadrilateral whose vertices taken in order, are $(-4, -2)$, $(-3, -5)$, $(3, -2)$ and $(2, 3)$.

Or

If A and B are $(-2, -2)$ and $(2, -4)$, respectively, find the coordinates of P such that $AP = \frac{3}{7}AB$ and P lies on the line segment AB.

38. Prove that the line joining the mid-points of any two sides of a triangle is parallel to the third side.

Or

In an equilateral triangle, prove that three times the square of one side is equal to four times the square of one of its altitudes.

39. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60° .

40. If the median of the distribution given below is 28.5, find the values of x and y :

Class Interval	Frequency
0-10	5
10-20	x
20-30	20
30-40	15
40-50	y
50-60	5
Total	60

A-3-Y

Roll No.....

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XARJKUT23

9303-Y

MATHEMATICS

Time : 3 Hours]

[Maximum Marks : 80

Section-A

1 each

1. The number $\sqrt{2}$ is :

(A) an even number

(B) a rational number

(C) an irrational number

(D) None of these

XARJKUT23-9303-Y

A-3-Y

Turn Over

2. Sum of zeroes of the quadratic polynomial $x^2 + 7x + 10$ is :

(A) -7

(B) 10

(C) 7

(D) None of these

3. The 11th term of an A.P. $3, 3, 3, 3, \dots$ is :

(A) 0

(B) 3

(C) 33

(D) None of these

4. Distance between the points (0, 3) and (2, 0) is :

(A) $\sqrt{5}$

(B) $\sqrt{13}$

(C) $\sqrt{6}$

(D) None of these

5. Circumference of a circle with radius ' r ' is :

(A) πr

(B) $2\pi r$

(C) $3\pi r$

(D) None of these

Turn Over

6. ✓ $Kx + 2y = 5$ and $3x + y = 1$, has a unique solution if :

(A) $K = 6$

(B) $K = 0$

(C) • $K \neq 6$

(D) None of these

†
7. How many tangents can a circle have ?

(A) 1

(B) • Infinite

(C) 2

(D) None of these

8. A card is drawn from a pack of 52 cards. What is the probability of getting a King of red colour ?

(A) $\frac{1}{13}$

(B) $\frac{1}{2}$

(C) $\frac{1}{26}$

(D) None of these

9. $1 + \tan^2 \theta$ is equal to :

(A) $\operatorname{cosec}^2 \theta$

(B) $\sec^2 \theta$

(C) $-\sec^2 \theta$

(D) None of these

Turn Over

10. The sum of the roots of the quadratic equation $ax^2 + bx + c = 0$, $a \neq 0$ is :

(A) $\frac{c}{a}$

(B) $-\frac{b}{a}$

(C) $\frac{b}{a}$

(D) None of these

11. H.C.F. of two consecutive even numbers is² ..

(Fill in the blank)

12. The sum of first five multiples of 3 is 45.

(True/False)

Or

$a_n = a + (n + 1)d$ is the n th term of an A.P. series.

(True/False)

13. $\operatorname{cosec}^2 \theta - \cot^2 \theta = 1$. (True/False)

14. All circles of different radii are (Congruent/Similar)

15. The tangent at any point of a circle is to the radius
through the point of contact. (Fill in the blank)

16. Define Section Formula.

Or

Define Abscissa of a point.

17. State Pythagoras Theorem.

18. Define Angle of Depression.

19. What is the probability of impossible event ?

Turn Over

20. Write the formula for volume of a cylinder.

Section-B

2 each

21. Find the L.C.M. of 26 and 91.

22. A drinking glass is in the shape of a frustum of a cone of height 14 cm. The diameters of its two circular ends are 4 cm and 2 cm. Find the capacity of the glass.

23. Solve the pair of linear equations :

$$2x + 3y = 11$$

$$2x - 4y = -24$$

by substitution method.

24. Given $15 \cot A = 8$, find $\sin A$ and $\sec A$.

Or

Evaluate :

$$2 \tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$$

25. A bag contains 3 red balls 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 ?

26. A class teacher has the following absence record of 40 students of a class for the whole term. Find the mean number of days a student was absent :

Number of Days	Number of Students
0-6	11
6-10	10
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Section-C

3 each

27. Obtain all other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$.

Or

Find a quadratic polynomial, the sum and product of whose zeroes are $\sqrt{2}$ and $\frac{1}{3}$, respectively.

28. A fraction becomes $\frac{1}{3}$ when 1 is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to its denominator. Find the fraction.

29. Find the roots of the quadratic equation $2x^2 + x - 6 = 0$ by factorization.

30. Find the 31st term of an A.P. whose 11th term is 38 and the 16th term is 73.

Or

Find the sum of the first 15 multiples of 8.

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Section-D

4 each

35. 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.

Or

Find the roots of $4x^2 + 3x + 5 = 0$ by the method of completing the square.

36. The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. Prove that the height of the tower is 6 m.

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Or

If A and B are $(-2, -2)$ and $(2, -4)$, respectively, find the coordinates of P such that $AP = \frac{3}{7}AB$ and P lies on the line segment AB.

38. Prove that the line joining the mid-points of any two sides of a triangle is parallel to the third side.

Or

In an equilateral triangle, prove that three times the square of one side is equal to four times the square of one of its altitudes.

39. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60° .

40. If the median of the distribution given below is 28.5, find the values of x and y :

Class Interval	Frequency
0-10	5
10-20	x
20-30	20
30-40	15
40-50	y
50-60	5
Total	60

Roll No.....

A-3-Z

Total No. of Questions : 40]

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XARJKUT23

9303-Z

MATHEMATICS

Time : 3 Hours]

[Maximum Marks : 80

Section-A

1 each

1. The number 1 is :

- (A) a prime number
- (B) a composite number
- (C) an even number
- (D) None of these

XARJKUT23-9303-Z

A-3-Z

Turn Over

2. Zeroes of the quadratic polynomial $4x^2 + 8x$ are :

(A) 0, -2

(B) 0, 2

(C) 0, 4

(D) None of these

3. The 10th term of the A.P. 1, 4, 7, is :

(A) 18

(B) 28

(C) 8

(D) None of these

4. Distance between the points (x, y) and $(0, 0)$ is :

(A) $\sqrt{x^2 + y^2}$

(B) $\sqrt{x + y}$

(C) $\sqrt{x^2 + y^2}$

(D) None of these

5. For what value of K : $4x + 6y = 11$ and $2x + Ky = 7$ are inconsistent ?

(A) $K = 2$

(B) $K = 3$

(C) $K = 4$

(D) None of these

6 Length of an arc of a sector of angle θ is :

(A) $\frac{\theta}{360} \times \pi r$

(B) $\frac{\theta}{360} \times \pi r^2$

(C) $\frac{\theta}{360} \times 2\pi r$

(D) None of these

7. From a point inside the circle the number of tangents that can be drawn is :

(A) 1

(B) 0

(C) 2

(D) None of these

8. A card is drawn from a pack of 52 cards. What is the probability of getting an Ace card ?

(A) $\frac{1}{13}$

(B) $\frac{1}{26}$

(C) $\frac{4}{13}$

(D) None of these

9 cot A is not defined for :

(A) $A = 90^\circ$

(B) $A = 0^\circ$

(C) $A = 45^\circ$

(D) None of these

10. The quadratic equation $x^2 + 4x + 5 = 0$ has discriminant equal to :

(A) 4

(B) -4

(C) 20

(D) None of these

11. If p, q are two prime numbers, then L.C.M. (p, q) is

(Fill in the blank)

12. The series 2, 4, 8, 16, is an A.P. (True/False)

Or

The next term of the A.P. $\frac{1}{3}, \frac{5}{3}, \frac{9}{3}, \frac{13}{3}, \dots$ is $\frac{17}{3}$. (True/False)

13. The value of $\sin \theta$ increases as θ increases. (True/False)
14. All squares are (Similar/Congruent)
15. A line intersecting the circle at two different points is called
..... (Fill in the blank)
16. Write the formula for finding the area of triangle whose vertices are
 (x_1, y_1) , (x_2, y_2) and (x_3, y_3) .

Or

Define Collinear Points.

17. State AA similarity criterion for two triangles.
18. Define Line of Sight.
19. What is the sum of the probabilities of all the elementary events of
an experiment ?

20. Write the formula for volume of a sphere.

Section-B

2 each

21. Find the H.C.F. of 336 and 54.

22. A drinking glass is in the shape of a frustum of a cone of height

14 cm. The diameters of its two circular ends are 4 cm and 2 cm.

Find the capacity of the glass.

23. Solve the pair of linear equations :

$$3x + 4y = 10$$

$$2x - 2y = 2$$

by substitution method.

24. Given $15 \cot A = 8$, find $\sin A$ and $\sec A$.

Or

Evaluate :

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14-20	4
20-28	4
28-38	3
38-40	1

Section-C

3 each

- 27 Obtain all other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$

Or

Find a quadratic polynomial, the sum and product of whose zeroes are $\sqrt{2}$ and $\frac{1}{3}$, respectively.

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Or

Find the sum of the first 15 multiples of 8.

Turn Over

31. Write all the other trigonometric ratios of $\angle A$ in terms of $\sec A$.
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Section-D

4 each

35. 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.

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- 36 The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. Prove that the height of the tower is 6 m.

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Or

If A and B are $(-2, -2)$ and $(2, -4)$, respectively, find the coordinates of P such that $AP = \frac{3}{7}AB$ and P lies on the line segment AB. <https://www.jkboseonline.com>

38. Prove that the line joining the mid-points of any two sides of a triangle is parallel to the third side.

Or

In an equilateral triangle, prove that three times the square of one side is equal to four times the square of one of its altitudes.

39. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60° .

40. If the median of the distribution given below is 28.5, find the values of x and y :

Class Interval	Frequency
0-10	5
10-20	x
20-30	20
30-40	15
40-50	y
50-60	5
Total	60

C-3-A

Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 15

10thARJKLK23

9403-A

MATHEMATICS

Time : 3 Hours]

[Maximum Marks : 80

Section-A

Note : Q. Nos. 1 to 10 are MCQ's of 1 mark each.

1. The graph of the quadratic polynomial $ax^2 + bx + c$ is a :

(A) Straight Line

(B) Parabola

(C) Circle

(D) None of these

10thARJKLK23-9403-A

C-3-A

Turn Over

2. The decimal expansion of the rational number $\frac{15}{1600}$ is :
- (A) 0.009375
- (B) 0.09375
- (C) 937.5
- (D) None of these
3. The roots of the equation $2x^2 - 3x + 5 = 0$ are :
- (A) Real and Distinct
- (B) Not Real
- (C) Real and Equal
- (D) None of these

4. The sum of the A.P. $1 + 2 + 3 + \dots + 100$ is :

(A) 5040

(B) 5030

(C) 5050

(D) None of these

5. The distance of the point $A(2, 3)$ from the X-axis is :

(A) 2

(B) 3

(C) 5

(D) $\sqrt{13}$

6. The number of tangents that can be drawn from a point inside a circle is :

(A) Infinite

(B) 2

(C) 1

(D) 0

7. The value of $(\sin 30^\circ + \cos 60^\circ) - (\sin 60^\circ + \cos 30^\circ)$ is :

(A) 0

(B) $1 + \sqrt{3}$

(C) $1 + 2\sqrt{3}$

(D) $(1 - \sqrt{3})$

8. A die is thrown in the air. The probability of getting odd number is :
- (A) $\frac{1}{2}$
- (B) 1
- (C) $\frac{2}{3}$
- (D) None of these
9. In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. The length of the arc is :
- (A) 22 cm
- (B) 24 cm
- (C) 21 cm
- (D) None of these

10. Volume of the cone with Radius (R) and Height (H) is :

(A) $\frac{1}{3}\pi R^3H$

(B) $\frac{1}{3}\pi R^2H$

(C) $\frac{2}{3}\pi R^2H$

(D) None of these

Note : Q. Nos. 11 to 15 are Fill in the blanks of 1 mark each.

11. The number of tangents that can be drawn from a point outside the circle is/are

12. The linear equations $2x + 3y = 9$ and $4x + 6y = 18$ have solutions.

13. The next two terms of the A.P. $\sqrt{2}, \sqrt{8}, \sqrt{18}, \sqrt{32}$ are and

Or

The term of the A.P. 21, 18, 15 is zero.

14. If $\tan A = \frac{1}{\sqrt{3}}$, then $\sec A = \dots\dots\dots$.

15. Two figures having the same but not necessarily the same are called similar figures.

Note : Q. Nos. 16 to 20 are Short Answer Type Questions of 1 mark each.

16. What are the co-ordinates of the point which divides the line segment joining the points $(-1, 7)$ and $(4, -3)$ in the ratio of $2 : 3$?

Or

What are the co-ordinates of the mid-point of the line segment joining the points $(6, 4)$ and $(-5, -3)$?

17. Define Angle of Elevation.
18. Ram tosses two different coins simultaneously, write down the possible outcomes ?
19. Write the statement of Basic Proportionality Theorem.
20. Define Irrational Numbers.

Section-B

Note : Q. Nos. 21 to 26 carry 2 marks each.

21. A cubical block of side 7 cm is surmounted by a hemisphere. What is the greatest diameter the hemisphere can have ? Find the surface area of the solid.
22. Find the L.C.M. of 12, 15 and 21 by Prime Factorisation Method.

23. On comparing the ratio $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find whether the following pairs of linear equations are consistent or inconsistent :

$$\frac{4}{3}x + 2y = 8; 2x + 3y = 12$$

24. Find Geometrically all the Trigonometric Ratios of 45° .

Or

If $3 \cot A = 4$, check whether $\frac{1 - \tan^2 A}{1 + \tan^2 A} = \cos^2 A - \sin^2 A$ or not.

25. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears :

(i) A two digit number

(ii) A number divisible by 5

26. The following distribution shows the daily pocket allowances of children of a locality. The mean pocket allowed is ₹ 18. Find the missing frequency f :

Daily Pocket Allowances (in ₹)	No. of Children
11-13	7
13-15	6
15-17	9
17-19	13
19-21	f
21-23	5
23-25	4

Section-C

Note : Q. Nos. 27 to 34 carry 3 marks each.

27. Find the zeroes of the polynomial $2x^2 - 8x + 6 = 0$ and verify the relationship between the zeroes and co-efficients.

Or

Check whether the polynomial $p(x) = t^2 - 3$ is a factor of the polynomial $g(x) = 2t^4 + 3t^3 - 2t^2 - 9t - 12$ by dividing $g(x)$ by $p(x)$.

28. Solve the following pairs of equations by reducing them to a pair of linear equations :

$$\frac{1}{2x} + \frac{1}{3y} = 2$$

$$\frac{1}{3x} + \frac{1}{2y} = \frac{13}{6}$$

29. Check whether $x^3 - 4x^2 - x + 1 = (x - 2)^3$ is a quadratic equation or not.
30. How many terms of the A.P. 24, 21, 18, must be taken so that their sum is 78.

Or

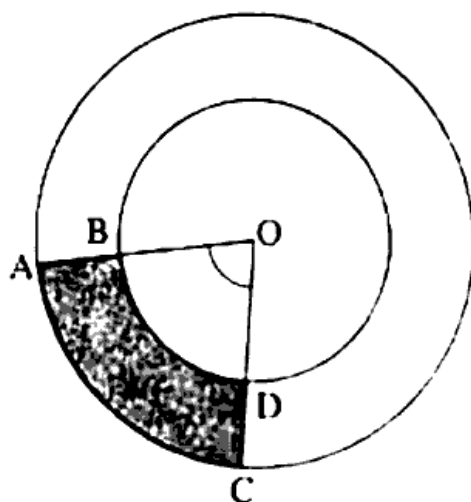
Check whether 301 is a term of the A.P. 5, 11, 17, 23
.....

31. In $\triangle ABC$ right angled at B, $AB = 5$ cm and $\angle ACB = 30^\circ$. Determine the length of the sides BC and AC.
32. Prove that the parallelogram circumscribing a circle is a rhombus.

Or

Two concentric circles are of radius 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

33. A hemispherical tank full of water is emptied by a pipe at the rate of $3\frac{4}{7}$ litres per second. How much time will it take to empty half the tank if it is 3 m in diameter. $\left(\pi = \frac{22}{7}\right)$
34. Find the area of the shaded region is given figure if radii of two concentric circles with centre O are 7 cm and 14 cm respectively and $\angle AOC = 40^\circ$:



Section-D

Note : Q. Nos. 35 to 40 carry 4 marks each.

35. Find the roots of the following equation :

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

Or

Find the roots of the quadratic equation $x^2 + 4x - 5 = 0$ by the method of completing the square. <https://www.jkboseonline.com>

36. The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. Prove that the height of the tower is 6 m.

37. Find the co-ordinates of the point which divides the line segment joining A(-2, 2) and B(2, 8) into four equal parts.

Or

Name the type of quadrilateral formed if any by the points (4, 5), (7, 6), (4, 3), (1, 2) and give reasons for your answer.

38. Sides AB and BC and median AD of a triangle ABC are respectively proportional to the sides PQ and QR and median PM of ΔPQR . Show that ΔABC is similar to triangle PQR.

Or

Prove that if in two triangles corresponding angles are equal, then their corresponding sides are in the same ratio (or proportional) and hence the two triangles are similar.

39. Draw a line segment AB of length 8 cm. Taking A as centre draw a circle of radius 4 cm and taking B as centre draw another circle of radius 3 cm. Construct tangents to each circle from the centre of the other circle. (Write also the steps of construction.)

40. The length of 40 leaves of a plant are measured correct to the nearest millimetre and the data obtained is represented in the following table :

Length (in mm)	Number of Leaves
118-126	3
127-135	5
136-144	9
145-153	12
154-162	5
163-171	4
172-180	2

Find the median length of the leaves.

C-3-A

Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 15

10thARJKLK23

9403-A

MATHEMATICS

Time : 3 Hours]

[Maximum Marks : 80

Section-A

Note : Q. Nos. 1 to 10 are MCQ's of 1 mark each.

1. The graph of the quadratic polynomial $ax^2 + bx + c$ is a :

(A) Straight Line

(B) Parabola

(C) Circle

(D) None of these

10thARJKLK23-9403-A

C-3-A

Turn Over

2. The decimal expansion of the rational number $\frac{15}{1600}$ is :
- (A) 0.009375
- (B) 0.09375
- (C) 937.5
- (D) None of these
3. The roots of the equation $2x^2 - 3x + 5 = 0$ are :
- (A) Real and Distinct
- (B) Not Real
- (C) Real and Equal
- (D) None of these

4. The sum of the A.P. $1 + 2 + 3 + \dots + 100$ is :

(A) 5040

(B) 5030

(C) 5050

(D) None of these

5. The distance of the point $A(2, 3)$ from the X-axis is :

(A) 2

(B) 3

(C) 5

(D) $\sqrt{13}$

6. The number of tangents that can be drawn from a point inside a circle is :

(A) Infinite

(B) 2

(C) 1

(D) 0

7. The value of $(\sin 30^\circ + \cos 60^\circ) - (\sin 60^\circ + \cos 30^\circ)$ is :

(A) 0

(B) $1 + \sqrt{3}$

(C) $1 + 2\sqrt{3}$

(D) $(1 - \sqrt{3})$

8. A die is thrown in the air. The probability of getting odd number is :
- (A) $\frac{1}{2}$
- (B) 1
- (C) $\frac{2}{3}$
- (D) None of these
9. In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. The length of the arc is :
- (A) 22 cm
- (B) 24 cm
- (C) 21 cm
- (D) None of these

10. Volume of the cone with Radius (R) and Height (H) is :

(A) $\frac{1}{3}\pi R^3H$

(B) $\frac{1}{3}\pi R^2H$

(C) $\frac{2}{3}\pi R^2H$

(D) None of these

Note : Q. Nos. 11 to 15 are Fill in the blanks of 1 mark each.

11. The number of tangents that can be drawn from a point outside the circle is/are

12. The linear equations $2x + 3y = 9$ and $4x + 6y = 18$ have solutions.

13. The next two terms of the A.P. $\sqrt{2}, \sqrt{8}, \sqrt{18}, \sqrt{32}$ are and

Or

The term of the A.P. 21, 18, 15 is zero.

14. If $\tan A = \frac{1}{\sqrt{3}}$, then $\sec A = \dots\dots\dots$.

15. Two figures having the same but not necessarily the same are called similar figures.

Note : Q. Nos. 16 to 20 are Short Answer Type Questions of 1 mark each.

16. What are the co-ordinates of the point which divides the line segment joining the points $(-1, 7)$ and $(4, -3)$ in the ratio of $2 : 3$?

Or

What are the co-ordinates of the mid-point of the line segment joining the points $(6, 4)$ and $(-5, -3)$?

17. Define Angle of Elevation.
18. Ram tosses two different coins simultaneously, write down the possible outcomes ?
19. Write the statement of Basic Proportionality Theorem.
20. Define Irrational Numbers.

Section-B

Note : Q. Nos. 21 to 26 carry 2 marks each.

21. A cubical block of side 7 cm is surmounted by a hemisphere. What is the greatest diameter the hemisphere can have ? Find the surface area of the solid.
22. Find the L.C.M. of 12, 15 and 21 by Prime Factorisation Method.

23. On comparing the ratio $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find whether the following pairs of linear equations are consistent or inconsistent :

$$\frac{4}{3}x + 2y = 8; 2x + 3y = 12$$

24. Find Geometrically all the Trigonometric Ratios of 45° .

Or

If $3 \cot A = 4$, check whether $\frac{1 - \tan^2 A}{1 + \tan^2 A} = \cos^2 A - \sin^2 A$ or not.

25. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears :

(i) A two digit number

(ii) A number divisible by 5

26. The following distribution shows the daily pocket allowances of children of a locality. The mean pocket allowed is ₹ 18. Find the missing frequency f :

Daily Pocket Allowances (in ₹)	No. of Children
11-13	7
13-15	6
15-17	9
17-19	13
19-21	f
21-23	5
23-25	4

Section-C

Note : Q. Nos. 27 to 34 carry 3 marks each.

27. Find the zeroes of the polynomial $2x^2 - 8x + 6 = 0$ and verify the relationship between the zeroes and co-efficients.

Or

Check whether the polynomial $p(x) = t^2 - 3$ is a factor of the polynomial $g(x) = 2t^4 + 3t^3 - 2t^2 - 9t - 12$ by dividing $g(x)$ by $p(x)$.

28. Solve the following pairs of equations by reducing them to a pair of linear equations :

$$\frac{1}{2x} + \frac{1}{3y} = 2$$

$$\frac{1}{3x} + \frac{1}{2y} = \frac{13}{6}$$

29. Check whether $x^3 - 4x^2 - x + 1 = (x - 2)^3$ is a quadratic equation or not.
30. How many terms of the A.P. 24, 21, 18, must be taken so that their sum is 78.

Or

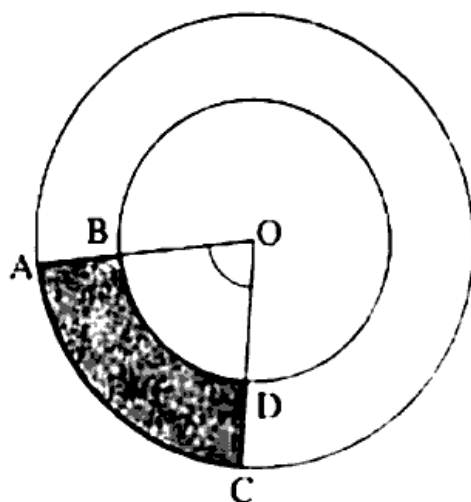
Check whether 301 is a term of the A.P. 5, 11, 17, 23
.....

31. In $\triangle ABC$ right angled at B, $AB = 5$ cm and $\angle ACB = 30^\circ$. Determine the length of the sides BC and AC.
32. Prove that the parallelogram circumscribing a circle is a rhombus.

Or

Two concentric circles are of radius 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

33. A hemispherical tank full of water is emptied by a pipe at the rate of $3\frac{4}{7}$ litres per second. How much time will it take to empty half the tank if it is 3 m in diameter. $\left(\pi = \frac{22}{7}\right)$
34. Find the area of the shaded region in given figure if radii of two concentric circles with centre O are 7 cm and 14 cm respectively and $\angle AOC = 40^\circ$:



Section-D

Note : Q. Nos. 35 to 40 carry 4 marks each.

35. Find the roots of the following equation :

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

Or

Find the roots of the quadratic equation $x^2 + 4x - 5 = 0$ by the method of completing the square. <https://www.jkboseonline.com>

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Name the type of quadrilateral formed if any by the points (4, 5), (7, 6), (4, 3), (1, 2) and give reasons for your answer.

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Find the median length of the leaves.

C-3-B

Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 15

10thARJKLK23

9403-B

MATHEMATICS

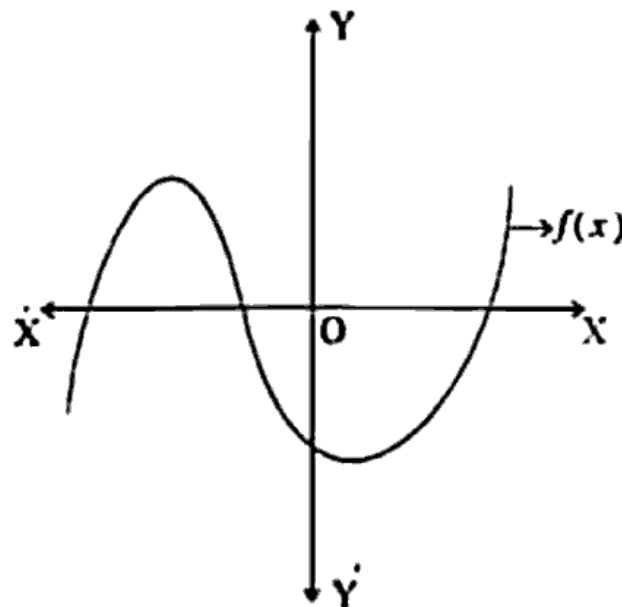
Time : 3 Hours]

[Maximum Marks : 80

Section-A

Note : Q. Nos. 1 to 10 are MCQ's of 1 mark each.

1. In given figure the number of zeroes of the polynomial $f(x)$ is :



(A) 4

(B) 2

(C) 3

(D) None of these

10thARJKLK23-940

C-3-B

Turn Over

2. The distance of the point $(-6, 8)$ from the origin is :

(A) 10

(B) 15

(C) 14

(D) None of these

3. The rational number $\frac{64}{455}$ is :

(A) Terminating

(B) Non-terminating repeating

(C) Non-terminating, Non-repeating

(D) None of these

4. The value of (K) for which the quadratic equation $2x^2 + Kx + 3 = 0$ has equal roots is/are :

(A) $+\sqrt{24}$

(B) $\pm 2\sqrt{6}$

(C) $-\sqrt{24}$

(D) None of these

5. If $a = 7$, $d = 3$, $n = 8$ in an A.P., then a_n is :

(A) 28

(B) -28

(C) 29

(D) None of these

6. A circle has a number of tangents equal to :

(A) 0

(B) 1

(C) Infinite

(D) None of these

7. In $\triangle ABC$, right-angled at B, $AB = 24$ cm, $BC = 7$ cm. The value of $\tan C$ is :

(A) $\frac{12}{7}$

(B) $\frac{24}{7}$

(C) $\frac{20}{7}$

(D) None of these

8. A card is selected from a deck of 52 cards. The probability of it being a red face card is :
- (A) $\frac{3}{26}$
- (B) $\frac{3}{13}$
- (C) $\frac{2}{13}$
- (D) None of these
9. The area of a sector of a circle with radius 6 cm if the angle of the sector is 60° is :
- (A) $\frac{142}{7}\text{cm}^2$
- (B) $\frac{152}{7}\text{cm}^2$
- (C) $\frac{132}{7}\text{cm}^2$
- (D) None of these

Turn Over

10. Total surface area of the hemisphere of radius (R) is :

(A) $4\pi R^2$

(B) $2\pi R^2$

(C) $3\pi R^2$

(D) None of these

Note : Q. Nos. 11 to 15 are Fill in the blanks of 1 mark each.

11. A line which intersects a circle in two distinct points is called a
.....

12. If $\cos x = \frac{2}{3}$, then $\tan x$ is

13. The linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$
have no solution if

14. The fourth term of the A.P. whose $a = -1.25$ and $d = -0.25$ is

.....

Or

The sum of $1 + 2 + 3 + \dots + n$ (A.P.) is

15. All triangles are similar.

Note : Q. Nos. 16 to 20 are Short Answer Type Questions of 1 mark each.

16. Define Rational Number.

17. State Pythagoras Theorem.

18. Find the perimeter of the triangle whose sides are 5 cm, 8 cm and 9 cm.

Turn Over

19. If $P(\bar{E}) = 0.38$, what is the probability of E ?
20. The area of the triangle whose vertices are $A(5, 2)$, $B(4, 7)$ and $C(7, -4)$.

Or

Find a relation between x and y such that (x, y) is equidistant from the points $(7, 1)$ and $(3, 5)$.

Section-B

Note : Q. Nos. 21 to 26 carry 2 marks each.

21. From a solid cylinder whose height is 2.4 cm and diameter 1.4 cm, a conical cavity of the same height and same diameter is hollowed out. Find the total area of the remaining solid to nearest cm^2 .
22. Find the H.C.F. of 6, 72 and 120 by prime factorisation method.

10thARJKLK23-9403-B

C-3-B

23. On comparing the ratio $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find whether the following pairs of linear equations are consistent or inconsistent :

$$\frac{4}{3}x + 2y = 8; 2x + 3y = 12$$

24. Find Geometrically all the Trigonometric Ratios of 45° .

Or

If $3 \cot A = 4$, check whether $\frac{1 - \tan^2 A}{1 + \tan^2 A} = \cos^2 A - \sin^2 A$ or not.

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Section-

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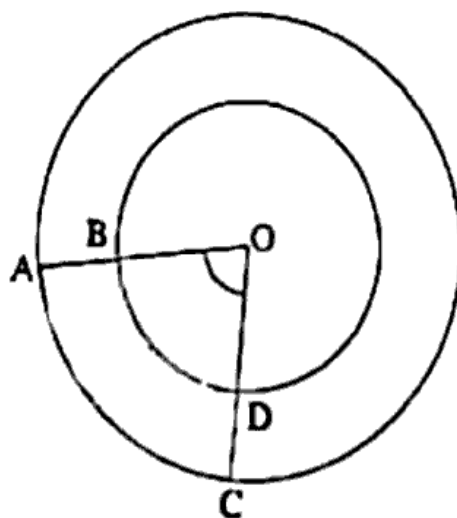
Turn Over

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32. Prove that the parallelogram circumscribing a circle is a rhombus.

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Two concentric circles are of radius 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

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Section-D

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Find the roots of the quadratic equation $x^2 + 4x - 5 = 0$ by the method of completing the square. <https://www.jkboseonline.com>

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Name the type of quadrilateral formed if any by the points (4, 5), (7, 6), (4, 3), (1, 2) and give reasons for your answer.

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C-3-C

Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 15

10thARJKLK23

9403-C

MATHEMATICS

Time : 3 Hours]

[Maximum Marks : 80

Section-A

Note : Q. Nos. 1 to 10 are MCQ's of 1 mark each.

1. The roots of the equation $x^2 - 3x - 10 = 0$ are :

(A) -2, 5

(B) -2, -5

(C) +2, -5

(D) None of these

10thARJKLK23-9403-C

C-3-C

Turn Over

2. The decimal expansion of $\frac{23}{2^3 \times 5^2}$ will terminate after how many places of decimal ?

(A) 3

(B) 4

(C) 2

(D) None of these

3. If $P(x) = ax + b$, then zero of $P(x)$ is :

(A) $-\frac{b}{a}$

(B) a

(C) $-\frac{a}{b}$

(D) None of these

4. The sum of the first 22 terms of the A.P. 8, 3, -2, is :

(A) 979

(B) -979

(C) 900

(D) None of these

5. The distance between any two points on the circumference of a circle is called the :

(A) Secant

(B) Chord

(C) Tangent

(D) None of these

6. The co-ordinates of the point on the x -axis which is equidistant from $(2, -5)$ and $(-2, 9)$ is :
- (A) $(7, 0)$
- (B) $(-7, 0)$
- (C) $(2, 3)$
- (D) None of these
7. The value of $\frac{2 \tan 30^\circ}{1 - \tan^2 30^\circ}$ is :
- (A) $\cos 60^\circ$
- (B) $\tan 60^\circ$
- (C) $\sin 60^\circ$
- (D) None of these

8. The total surface area of cylinder of Radius (R) and Height (H) is :

(A) $2\pi R(R + H)$

(B) $2\pi(R + H)$

(C) $2\pi RH$

(D) None of these

9. The area of the quadrant of a circle whose circumference is 22 m is :

(A) 9.624 cm^2

(B) 9.625 cm^2

(C) 9.600 cm^2

(D) None of these

10. What will be the probability of losing a game if the winning probability is 0.3 ?

(A) 0.6

(B) 0.7

(C) 1

(D) None of these

Note : Q. Nos. 11 to 15 are Fill in the blanks of 1 mark each.

11. The distance between two parallel tangents to a circle is 18 cm. Then the radius of the circle is

12. If $\tan A = \frac{4}{3}$, then $\sin A = \dots\dots\dots$

13. A pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ is said to be inconsistent if

14. In an A.P. $a_n = 0$, $n = 10$, $a = -18$, then d

Or

If $l = 28$, $S_n = 144$, $n = 9$ in an A.P., then a

15. The ratio of the areas of two similar triangles is equal to

Note : Q. Nos. 16 to 20 are Short Answer Type Questions carry

1 mark each.

16. Write the statement of AAA criterion of similarity of two triangles.

17. Find the probability of getting two tails when two coins are tossed.

18. Write down three trigonometric identities.
19. Find the circumference of a circle whose radius is 7 cm.
20. Check whether $(-4, 0)$, $(4, 0)$, $(0, 3)$ are vertices of an isosceles triangle.

Or

Find the distance between the points $A(c, d)$ and $B(-c, -d)$.

Section-B

Note : Q. Nos. 21 to 26 carry 2 marks each.

21. A hemispherical depression is cut out from one face of a cubical wooden block such that the diameter l of the hemisphere is equal to the edge of the cube. Determine the surface area of the remaining solid.
22. Express 3825 as product of its prime factors.

10th ARJKLK23-9403-C

C-3-C

23. On comparing the ratio $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, find whether the following pairs of linear equations are consistent or inconsistent :

$$\frac{4}{3}x + 2y = 8; 2x + 3y = 12$$

24. Find Geometrically all the Trigonometric Ratios of 45° .

Or

If $3 \cot A = 4$, check whether $\frac{1 - \tan^2 A}{1 + \tan^2 A} = \cos^2 A - \sin^2 A$ or not.

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Section-C

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Check whether the polynomial $p(x) = x^2 - 3$ is a factor of the polynomial $g(x) = 2x^4 + 3x^3 - 2x^2 - 9x - 12$ by dividing $g(x)$ by $p(x)$.

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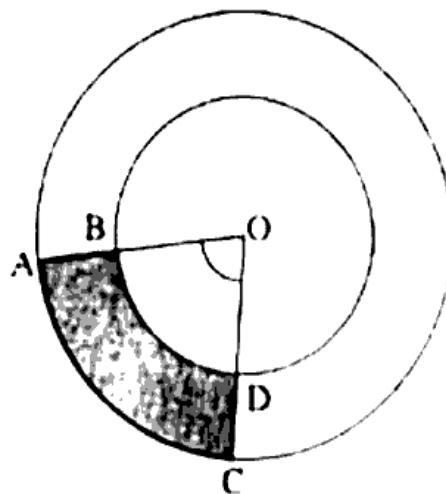
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Or

Prove that if in two triangles corresponding angles are equal, then their corresponding sides are in the same ratio (or proportional) and hence the two triangles are similar. <https://www.jkboseonline.com>

39. Draw a line segment AB of length 8 cm. Taking A as centre draw a circle of radius 4 cm and taking B as centre draw another circle of radius 3 cm. Construct tangents to each circle from the centre of the other circle. (Write also the steps of construction.)

40. The length of 40 leaves of a plant are measured correct to the nearest millimetre and the data obtained is represented in the following table :

Length (in mm)	Number of Leaves
118-126	3
127-135	5
136-144	9
145-153	12
154-162	5
163-171	4
172-180	2

Find the median length of the leaves.

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10th ARJKLK23-9403-C

C-3-C

F-3-A

Roll No.

Total No. of Questions : 40

[Total No. of Printed Pages : 8.]

XAPBIAJKLK23

9903-A

MATHEMATICS

(New/Old Course)

Time : 3 Hours]

[Maximum Marks : 80

NOTE :— The questions in the question paper are based on revised and pre-revised syllabus marked as “New Course” and “Old Course” respectively and candidates are advised to appear in the relevant course meant for them. Candidates who may attempt the questions partly from “New Course” and partly from “Old Course” will not be awarded. Candidates are also advised to record “New Course” or “Old Course” as the case may be, on the front page of the answer-book.

XAPBIAJKLK23—9903-A (New)

Turn Over

F-3-A

(New Course)**Section-A**

1 each

1. If P is a prime, then $\sqrt{P}$ is number. (Fill in the blank)
2. If α and β are the zeros of quadratic polynomial $2x^2 + 5x + 1$, then $\alpha + \beta$ is :
 (A) $-\frac{2}{5}$ (B) $-\frac{1}{5}$
 (C) $\frac{2}{5}$ (D) $-\frac{5}{2}$
3. A quadratic equation $ax^2 + bx + c = 0$, where $a \neq 0$ has two equal real roots :
 (A) $D > 0$ (B) $D < 0$
 (C) $D = 0$ (D) None of these
4. The sum of the first 5 multiple of 7 is
 (Fill in the blank)
5. The distance between the points (x_1, y_1) and (x_2, y_2) is
 (Fill in the blank)
6. Number of tangents can be drawn from an external point to the circle is/are :
 (A) Infinite many (B) Only one
 (C) Two (D) None of these

7. Circumference of a circle of radius 3 cm is :
 (A) 6π (B) 9π
 (C) 3π (D) None of these
8. The sum of the probabilities of all the events of an experiment is
 (Fill in the blank)
9. $\sec^2 \theta = 1 - \tan^2 \theta$ is True/False.
10. The class interval of given observation is 10 – 20, then class mark for this interval is :
 (A) 10 (B) 20
 (C) 15 (D) None of these
11. $7\sqrt{3}$ is a/an number. (Fill in the blank)
12. If the pair of linear equations has infinite many solutions, then the lines representing these equations will :
 (A) Coincide
 (B) Intersecting at one point
 (C) Parallel to each other
 (D) None of these
13. Find the 10th term of an A.P. 1, -1, -3, -5,

Or

What is the common difference of the A.P. 2, 4, 8, 16,

14. Given that $\sin A = \frac{a}{b}$, then $\cos A = ?$

- (A) $\frac{\sqrt{b^2 + a^2}}{b}$ (B) $\frac{b}{\sqrt{b^2 - a^2}}$
 (C) $\frac{a}{\sqrt{b^2 - a^2}}$ (D) $\frac{\sqrt{b^2 - a^2}}{b}$

15. The point $(-1, 4)$ lies in :
 (A) First quadrant (B) 2nd quadrant
 (C) 3rd quadrant (D) 4th quadrant
16. All squares are similar. (True/False)
17. Define the angle of Elevation.
18. A line intersecting a circle at two points is called
 (Fill in the blank)
19. A card is drawn from a set of 52 cards. Find the probability of getting a queen card.
20. Length of an arc of sector of angle ' θ ' and radius ' r ' is
 (Fill in the blank)

Section-B

Note :— Q. Nos. 21 to 26 carry 2 marks each.

21. Prove that $\sqrt{2}$ is irrational.
22. 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 a toy is 15.5 cm. Find the total surface area.

Or

A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6 cm. Find the height of the cylinder.

(5)

23. Solve by using elimination method :

$$x + y = 5$$

and

$$2x - 3y = 4$$

24. Find the value of :

$$\frac{1 - \tan^2 45^\circ}{1 + \tan^2 45^\circ}$$

Or

Evaluate :

$$\sin 60^\circ \cos 30^\circ + \sin 30^\circ \cos 60^\circ$$

25. A bag contains 3 red balls 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 black

26. The table shows daily expenditure on food of 25 households :

Daily Expenditure	No. of Households
100–150	4
150–200	5
200–250	12
250–300	2
300–350	2

Find the mean daily expenditure on food.

XAPBIAJKLK23—9903—A (New)

F-3-A

Turn Over

Section-C

Note :— Q. Nos. 27 to 34 carry 3 marks each,

27. Divide $2x^2 + 3x + 1$ by $x + 2$ and find the quotient and remainder.

Or

Obtain all the zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its

zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$

28. Check graphically whether the pair of equations :

$$x + 3y = 6$$

$$2x - 3y = 12$$

is consistent, if so, solve it.

29. Find the roots of the equation $3x^2 - 5x + 2 = 0$ by the method of completing the square.

30. If the 3rd and 9th terms of an A.P. are 4 and -8 respectively, which term of an A.P. is zero ?

Or

Find the sum of the odd numbers between 0 and 50.

31. Prove the identity :

$$\frac{\sin \theta - 2 \sin^3 \theta}{2 \cos^3 \theta - \cos \theta} = \tan \theta$$

XAPBIAJKLK23—9903—A (New)

F-3-A

32. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

Or

Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of larger circle which touches the smaller circle.

33. The length of the minute hand of circle is 14 cm. Find the area swept by the minute hand in 5 minutes.
34. Metallic spheres of radii 6 cm, 8 cm and 10 cm respectively are melted to form a single solid sphere. Find the radius of the resulting sphere. <https://www.jkboseonline.com>

Section-D

Note :— Q. Nos. 35 to 40 carry 4 marks each.

35. Sum of the areas of two squares is 468 m^2 . If the difference of their perimeter is 24 m, find the sides of two squares.

Or

Find the roots of the equation :

$$\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}$$

where $x \neq -4, 7$.

36. The angle of elevation of the top of building from the foot of tower is 30° and the angle of elevation of top of tower from the foot of building is 60° . If the tower is 50 m high, find the height of building.

37. Find the area of rhombus if its vertices are (3, 0), (4, 5), (-1, 4) and (-2, -1) taken in order.

Or

If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices of a parallelogram taken in order. Find 'x' and 'y'.

38. D and E are points on the sides CA and CB respectively of triangle ABC, right angle at C. Prove that :

$$AE^2 + BD^2 = AB^2 + DE^2$$

Or

ABC is an equilateral triangle of side $2a$. Find each of its altitude.

39. Draw a triangle ABC with side $BC = 7$ cm. $\angle B = 45^\circ$, $\angle A = 105^\circ$, then construct a triangle whose sides are $\frac{4}{3}$ times the corresponding sides of triangle ABC.
40. If the median of the distribution given below is 28.5. Find the value of 'x' and 'y' :

Class Interval	Frequency
0—10	5
10—20	x
20—30	20
30—40	15
40—50	y
50—60	5

XAPBIAJKLK23—9903—A (New)

F-3-A

F-3-B

Roll No.

Total No. of Questions : 40+20]

[Total No. of Printed Pages : 16

XAPBIAJKLK23

9903-B

MATHEMATICS

(~~New/Old~~ Course)

Time : 3 Hours]

[Maximum Marks : 80

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answer-book.

XAPBIAJKLK23—9903-B (New)

F-3-B

Turn Over

(New Course)

Section-A

1 each

1. LCM of 12, 15 and 21 is (Fill in the blank)

2. If α and β are the zeroes of quadratic polynomial $ax^2 + bx + c$, then $\alpha + \beta$ is equal :

(A) $+\frac{b}{a}$

(B) $-\frac{c}{a}$

(C) $\frac{b}{a}$

(D) None of these

3. A quadratic equation $ax^2 + bx + c = 0$, where $a \neq 0$ has two unequal roots if :

(A) $D > 0$

(B) $D < 0$

(C) $D = 0$

(D) None of these

4. The sum of the first 5 multiple of 3 is

(Fill in the blank)

5. The distance of point (x, y) from the origin is

(Fill in the blank)

6. Number of tangents can be drawn from a point on the circle is :

(A) Infinite many

(B) Only one

(C) Two

(D) None of these

XAPBIAJKLK23—9903-B (New)

F-3-B

7. Circumference of circle of radius 2 cm is :

(A) 2π

(B) 6π

(C) 4π

(D) None of these

8. The probability of a sure event is (Fill in the blank)

9. $\sin^2 \theta = \cos^2 \theta - 1$ is True/False.

10. The class interval of a given observation is 10 - 16, then class mark for this interval is (Fill in the blank)

11. $7 + \sqrt{3}$ is a/an number. (Fill in the blank)

12. If the pair of linear equations has a unique solution, then the lines representing these equations will :

(A) Coincide

(B) Intersecting at one point

(C) Parallel to each other

(D) None of these

13. Find the 8th term of an A.P. 1, -1, -3, -5,

Or

What is the common difference of the A.P. 0, ~~(-4)~~ -8, -12, ?

14. If $\sin A = \frac{a}{b}$, then $\sec A = ?$

(A) $\frac{\sqrt{b^2 + a^2}}{b}$

(B) $\frac{b}{\sqrt{b^2 - a^2}}$

(C) $\frac{a}{\sqrt{b^2 - a^2}}$

(D) $\frac{\sqrt{b^2 - a^2}}{b}$

15. A point (2, -3) lies in :

(A) 1st quadrant

(B) 2nd quadrant

(C) 3rd quadrant

(D) 4th quadrant

16. All circles are similar.

(True/False)

17. Define the angle of depression.

18. The common point of a tangent to a circle and the circle is called
(Fill in the blank)

19. A card is drawn from the set of 52 cards. What is the probability of getting a king card ?

20. Area of sector of angle ' θ ' of a circle with radius ' R ' is

(Fill in the blank)

Section-B

Note :— Q. Nos. 21 to 26 carry 2 marks each.

21. A solid is in the shape of a cone standing on a hemisphere with both their radii being equal to 1 cm and height of the cone is equal to its radius. Find the volume of solid in terms of π .

Or

2 cubes each of volume 64 cm^3 are joined end to end. Find the surface area of the resulting cuboid.

22. Prove that $\sqrt{3}$ is irrational.

XAPBIAJKLK23—9903-B (New)

F-3-B

23. Solve by using elimination method :

$$x + y = 5$$

and

$$2x - 3y = 4$$

24. Find the value of :

$$\frac{1 - \tan^2 45^\circ}{1 + \tan^2 45^\circ}$$

Or

Evaluate :

$$\sin 60^\circ \cos 30^\circ + \sin 30^\circ \cos 60^\circ$$

25. A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is :

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XAPBIAJKLK23—9903-B (New)

F-3-B

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XAPBIAJKLK23—9903-B (New)

F-3-B

Turn Over

37. Find the area of rhombus if its vertices are $(3, 0)$, $(4, 5)$, $(-1, 4)$ and $(-2, -1)$ taken in order.

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30—40	15
40—50	y
50—60	5

XAPBIAJKLK23—9903—B (New)

F-3-B