

Mathematics (New)**10th (Fresh/Reappear)**

۱۔ ہر سوال کے سامنے چار دائرے دیئے گئے ہیں، صرف صحیح جواب والا دائرہ بھریں۔

۲۔ دائروں کو شیڈ (بھرنے) کے لیے نیلے یا کالے رنگ کا مارکر استعمال کریں۔

۳۔ جواب میں ایک سے زائد دائرے بھرنے سے جواب غلط تصور ہوگا۔

Time: 20 Minutes**SECTION-A****Marks: 15****Q1: Choose the correct option i.e, A,B,C or D?**

- The value obtained by adding the lower class limit and the upper class limit and then dividing by two is called the:

☒ Class mark	☐ Class width
☐ Class limits	☐ Class boundaries
- When constructing a histogram for continuous data, the class boundaries are typically plotted on the:

☐ Vertical axis (y-axis)	☒ Horizontal axis (x-axis)
☐ Diagonal axis	☐ Origin only
- To convert an angle from degrees to radians, you should multiply the degree measure by:

☐ $\frac{\pi}{360}$	☐ 2π	☐ $\frac{180}{\pi}$	☒ $\frac{\pi}{180}$
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- If $\pi < \theta < \frac{3\pi}{2}$, then θ lies in the.

☐ 1 st quadrant	☐ 2 nd quadrant
☒ 3 rd quadrant	☐ 4 th quadrant
- In a circle, if two chord PQ and RS are equidistance from the center, then:

☐ $PQ < RS$	☒ $PQ = RS$
☐ $PQ > RS$	☐ PQ and RS are perpendicular
- The mean proportion of 5 and 20 is.

☐ 5	☒ 10	☐ 15	☐ 903
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- A rational fraction $\frac{2x^2 + 5}{x^3 + x^2 + 1}$ is.

☒ Proper fraction	☐ Improper fraction
☐ Mixed fraction	☐ Undefined
- If $A=W$ and $B=Z$ then $A \cup B$ is equal to.

☐ Empty set	☒ Sets of integers
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- ☐ Set of rational numbers ☐ Sets of irrational numbers
9. If two ordered pairs $(3x, x+2y)$ and $(3, 4)$ are equal, then the value of y is.
- ☐ 2 ☐ 3 ☒ $\frac{2}{3}$ ☐ $\frac{3}{2}$
10. If $A=\{2,3\}$ and $B=\{d,e\}$ then the number of elements in binary relation from A to B are.
- ☐ 4 ☐ 6 ☒ 16 ☐ 32
11. The equation $k+3x+kx^2=0$ is.
- ☐ Linear equation ☒ Quadratic equation
☐ Cubic equation ☐ Quartic equation
12. $x=-3$ or $x=-1$ are the roots of the quadratic equation.
- ☐ $x^2-6x+5=0$ ☒ $x^2+4x+3=0$ ☐ $x^2+5x+4=0$ ☐ $2x^2-6x+4=0$
13. The discriminant of the quadratic equation $4x^2-5x+2=0$ is.
- ☐ 0 ☐ 4 ☐ 7 ☒ -7
14. The product of the roots of the quadratic equation $3x^2+4x+12=0$ is.
- ☐ 2 ☐ 3 ☒ 4 ☐ 8
15. If y varies directly as x and $y=15$ when $x=5$, so the value of k is.
- ☐ 2 ☐ 3 ☒ 4 ☐ 5

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Note: Time allowed for Section-B & Section-C is 2:40 hours.

SECTION-B

Marks: 36

Q2: Attempt any NINE parts. Each part carries FOUR marks.

- Solve the equation $5^{2x}-26 \cdot 5^x+25=0$ for x .
- Solve the equation $\sqrt{4x-5} = 3 + \sqrt{x-4}$
- Find the quadratic equation whose roots are 3 and $\frac{2}{3}$.
- Find the value of k so that the sum of the roots of the equation $3x^2+kx-2=0$ is equal to three times the product of its roots.
- Solve the equation $\frac{\sqrt{3x+5} + \sqrt{4x-3}}{\sqrt{3x+5} - \sqrt{4x-3}} = \frac{5}{1}$.
- Resolve $\frac{3x+1}{(x+1)(x-3)}$ into partial fractions.
- If $x=\{1,2,3,4\}$ and $y=\{a,b,c,d\}$ then write.
 (a) A one-one function from x to y .
 (b) Bijective function from y to x .

8. Find the variance for the data: 5, 10, 15, 20, 25
9. Find the area of sector of a circle whose radius is 8m, with central angle 75° .
10. Prove that $\sin\theta \operatorname{cosec}\theta - \cos^2\theta = \sin^2\theta$.
11. If two circles with radii $2x$ cm and 4cm respectively touches each other externally, find the value of x if the distance between their centers is 12cm.
12. In a circle, arcs PQ and RS subtend equal angles at the center. If the length of chord PQ = $3x + 2$ cm and the length of chord RS = $x + 4$ cm, find the value of x .

SECTION-C

Marks: 24

Note: Attempt any THREE questions. All questions carry equal marks.

- QIII: Using Apollonius theorem, find the length of the medians of the triangle, having length of their sides are $AB = 5$ cm, $BC = 7$ cm, and $AC = 9$ cm.
- QIV: Prove that perpendicular from the center of a circle on a chord bisect it.
- QV: Prove that any two angles in the same segment of a circle are equal.
- QVI: Draw a triangle DEF whose sides are 6cm, 8cm and 10cm. Inscribe a circle in the triangle.