

**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: 15 Minutes

**SECTION-A**

Marks: 15

Q1: Choose the correct option i.e, A,B,C or D?

1. If  $(2x, y+2) = (4, 6)$  then.

- ☒  $x=2, y=4$ 
☐  $x=4, y=2$ 
☐  $x=4, y=6$ 
☐  $x=6, y=4$

2. If  $f = \{(6,7), (7,8), (8,9)\}$  is a function from  $A = \{6,7,8\}$  to  $B = \{7,8,9,10\}$ then the domain of  $f$  is.

- ☐  $\{6,7,8\}$ 
☒  $\{7,8,9\}$ 
☐  $\{6,7,8,9\}$ 
☐  $\{7,8,9,10\}$

3. If  $A = \{d,e,f\}$  and  $B = \{a,b,c\}$  then a function from  $A$  to  $B$  is.

- ☐  $R = \{(a,d), (b,e), (c,d)\}$ 
☐  $R = \{(a,d), (b,e), (a,f)\}$ 
☒  $R = \{(d,a), (e,b), (f,a)\}$ 
☐  $R = \{(d,a), (e,b), (d,c)\}$

4. The average of 45 and 73 with weights of 3 and 1 respectively is.

- ☐ 52
☒ 59
☐ 62
☐ 320

5. The range of the data 11,33,15,28,25 is.

- ☐ 33
☒ 22
☐ 14
☐ 11

6. The quadrantal angle in the given is.

- ☐  $\frac{\pi}{3}$  radians
☐  $\frac{2\pi}{3}$  radians
☒  $\pi$  radians
☐  $\frac{4\pi}{3}$  radians

7. The quadrants in which  $\sec \theta$  is positive are.

- ☐ 1<sup>st</sup> and 2<sup>nd</sup> quadrant
☒ 1<sup>st</sup> and 4<sup>th</sup> quadrants
☐ 2<sup>nd</sup> and 3<sup>rd</sup> quadrants
☐ 2<sup>nd</sup> and 4<sup>th</sup> quadrants

8. The distance of a 24cm long chord from the centre of a circle of radius 20cm is.

- ☒ 4cm
☐ 13.3cm
☐ 16cm
☐ 31.2cm

9. To apply the quadratic formula to  $9x^2 - 4x = -5$ , we have.

- ☐  $a=9, b=4, c=5$ 
☐  $a=9, b=4, c=-5$ 
☐  $a=9, b=-4, c=5$ 
☒  $a=9, b=-4, c=-5$

10. Which of the given equation can be reduced to a quadratic

equation?

☐  $5x^5 + 9x^3 - 2 = 0$

☐  $5x^5 + 9x^2 - 2 = 0$

☐  $5x^4 + 9x^3 - 2 = 0$

☒  $5x^4 + 9x^2 - 2 = 0$

11. Discriminant of the quadratic equation  $7x^2 - 4x + = 0$  is.

☒ 44

☐ 12

☐ -12

☐ -44

12. The quadratic equation whose roots are -6 and 4 is.

☐  $x^2 + 2x + 24 = 0$

☐  $x^2 - 2x + 24 = 0$

☒  $x^2 + 2x - 24 = 0$

☐  $x^2 - 2x - 24 = 0$

13. If  $\frac{8}{5} = \frac{16}{10}$ , then by dividend property.

☐  $\frac{8}{16} = \frac{5}{10}$

☒  $\frac{5}{8} = \frac{10}{16}$

☐  $\frac{13}{5} = \frac{26}{10}$

☐  $\frac{3}{50} = \frac{6}{10}$

14. Which of the given relations represents a joint variation between the quantities?

☐  $a = 4b^3$

☐  $ab^3 = 4$

☒  $a = 4b^3c$

☐  $ab^3c = 4$

15. Which of the given is a proper fraction?

☐  $\frac{x^6 + 6}{x^5 + 4}$

☐  $\frac{x^6 + 4}{x^3 + 6}$

☒  $\frac{x^5 + 6}{x^6 + 4}$

☐  $\frac{x^5 + 4}{x^5 + 6}$

### MATHEMATICS 10<sup>th</sup> (Fresh/Reappear)

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

#### SECTION-B

Marks: 36

Q2: Attempt any NINE parts. Each part carries 4 marks?

1. Solve the given equation by factorization  $3x^2 - 14x + 8 = 0$ ?
2. Solve the given equation  $3^{2x} - 4 \cdot 3^x + 3 = 0$ ?
3. Find the sum and product of roots of the given equation  $6x^2 - 5x - 3 = 0$ ?
4. Use synthetic division to find quotient  $Q(x)$  and the remainder  $R$  when the polynomial  $5x^3 - 3x + 2$  is divided by  $x+4$ ?
5. Find the mean proportional of 3 and 27?
6. Resolve the given fraction into partial fraction  $\frac{x-3}{x^2-4}$ ?
7. If  $X = \{a, b, c\}$  and  $Y = \{7, 8, 9\}$ , then write a bijective function from  $X$  to  $Y$ , and also from  $Y$  to  $X$ ?
8. Find harmonic mean for the given data 3, 7, 10, 12, 16?
9. An arc of a circle of radius 9cm sub ends an angle of  $60^\circ$  at its centre. Find the length of the arc?

10. The angle of depression of a boat from the top of a light house is  $60^\circ$ . If the horizontal distance between them is 50m, find the height of the light house?
11. Find the length of a tangent drawn to a circle of radius 9cm from a point at a distance of 15cm from the centre of the circle?
12. Prove that if two chords of a circle are equal, then their corresponding minor arcs are congruent?

### **SECTION-C**

**Marks: 24**

**Q3: Attempt any THREE questions. All question carry equal marks?**

1. Using Apollonius theorem, find the length of the medians of a triangle having sides 10cm, 14cm and 18cm?
2. Prove that two chords of a circle which are equidistant from the centre are congruent?
3. Prove that the angle in a semi-circle is a right angle?
4. Circumscribe an equilateral triangle about a circles of radius 5.3cm?