Test / Exam Name: Mcqs Test   Standard: 10th   Subject: Mathematics

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Q1. If $2\tan A = 3$, then the value of $\frac{4\sin A + 3\cos A}{4\sin A - 3\cos A}$ is: **1 Mark**

A $\frac{7}{\sqrt{13}}$ **B** $\frac{1}{\sqrt{13}}$ **C** 3   **D** Does not exist

Q2. If α, β are the zerose of a polynomial p(x) = x² + x - 1, then, $\frac{1}{\alpha} + \frac{1}{\beta}$ equals to: **1 Mark**

A 1   **B** 2   **C** -1   **D** $\frac{-1}{2}$

Q3. (cot θ + tan θ) equals: **1 Mark**

A cosec θ sec θ **B** sin θ sec θ
C cos θ tan θ **D** sin θ cos θ

Q4. A card is drawn at random from a pack of 52 cards. What is the probability that the card drawn is a spade or a king?   **1 Mark**

A $\frac{1}{13}$ **B** $\frac{2}{13}$ **C** $\frac{4}{13}$ **D** $\frac{9}{13}$

Q5. If the maximum number of students has obtained 52 marks out of 80, then: **1 Mark**

A 52 is the mean of the data.   **B** 52 is the median of the data.
C 52 is the mode of the data.   **D** 52 is the range of the data.

Q6. If $\sin(\alpha + \beta) = 1$, then the value of $\sin\left(\frac{\alpha+\beta}{2}\right)$ is: **1 Mark**

A $\frac{1}{\sqrt{2}}$ **B** $\frac{1}{2}$ **C** 0   **D** 1

Q7. A system of two linear equations in two variables is inconsistent, if the lines in the graph are: **1 Mark**

A coincident   **B** parallel
C intersecting at one point   **D** intersecting at right angles

Q8. If x is the LCM of 4, 6, 8 and y is the LCM of 3, 5, 7 and p is the LCM of x and y, then which of the following is true?   **1 Mark**

A p = 35x   **B** p = 4y   **C** p = 8x   **D** p = 16y

Q9. The 11th and 13th term of an AP are 39 and 45, respectively. What is the common difference of the AP?   **1 Mark**

A 42   **B** 21   **C** 6   **D** 3

Q10. **Directions:** In question number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: **1 Mark**
Assertion (A): 4" ends with digit 0 for some natural number n.
Reason (R): For a number 'x' having 2 and 5 as its prime factors, x" always ends with digit 0 for every natural number r.

A Both, Assertion (A) and Reason (R) are true and Reason (R) is correct explanation of Assertion (A).   **B** Both, Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
C Assertion (A) is true but Reason (R) is false.   **D** Assertion (A) is false but Reason (R) is true.

Q11. The line represented by the equation x - y = 0 is: **1 Mark**

A parallel to x-axis   **B** parallel to y-axis
C passing through the origin   **D** passing through the point (3, 2)

Q12. Which of the following is a rational number between $\sqrt{3}$ and $\sqrt{5}$?   **1 Mark**

A $1 \cdot 4142387954012....$

B $2 \times 32\overline{6}$

C π

D $1 \cdot 857142$

Q13. The distance of point (a, -b) from x-axis is: **1 Mark**

A a **B** b **C** -a **D** -b

Q14. If α and β are the zeroes of the polynomial p(x) = x² — ax — b, then the value of $(\alpha + \beta + \alpha\beta)$ is equal to: **1 Mark**

A a + b **B** - a - b **C** a - b **D** - a + b

Q15. If HCF(98, 28) = m and LCM(98, 28) = n, then the value of n 7m is : **1 Mark**
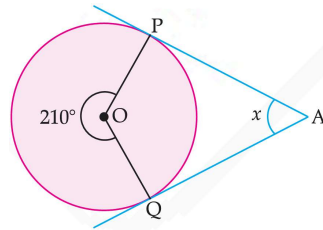
A 0 **B** 28 **C** 98 **D** 198

Q16. In the adjoining figure, AP and AQ are tangents to the circle with centre O. If reflex $\angle POQ = 210°$, the value of 2x is: **1 Mark**

A 30° **B** 60° **C** 120° **D** 300°

Q17. Which of the following statements is incorrect? **1 Mark**

A Two congruent figures are always similar.

B A square and a rhombus of the same area are always similar.

C Two equilateral triangles are always similar.

D Two similar triangles need not be congruent.

Q18. The 10th term of the AP $5, \frac{19}{4}, \frac{9}{2}, \frac{17}{4}, \ldots$ is: **1 Mark**

A $\frac{11}{4}$ **B** $\frac{4}{11}$ **C** $\frac{13}{4}$ **D** $\frac{4}{13}$

Q19. The value of k' for which the system of linear equations 6x + y = 3k and 36x + 6y = 3 have infinitely many solutions is: **1 Mark**

A 6 **B** $\frac{1}{6}$ **C** $\frac{1}{2}$ **D** $\frac{1}{3}$

Q20. The value of $\frac{2\tan^2 60°}{1-\tan^2 60°}$ is same as the value of: **1 Mark**

A $-\tan 30°$

B $-\tan 60°$

C $2\sin 60°$

D $2\cos 60°$

Q21. **Directions:** In question number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option: **1 Mark**

In an experiment of throwing a die,

Assertion (A: Event E, : getting a number less than 3 and Event E, : getting a number greater than 3 are complementary events.

Reason (R): If two events E and F are complementary events, then P(E) + P(F) = 1.

A Both Assertion (A) and Reason (R) are true and Reason (R) is correct explanation of Assertion (A).

B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).

C Assertion (A) is true, but Reason (R) is false.

D Assertion (A) is false, but Reason (R) is true.

Q22. If $\tan 30 = \sqrt{3}$, then $\frac{\theta}{2}$ equals: **1 Mark**

A 60° **B** 30° **C** 20° **D** 10°

Q23. The mid-point of the line segment joining the points P(4, 5) and Q(4, 6) lies on: **1 Mark**

A x-axis **B** y-axis

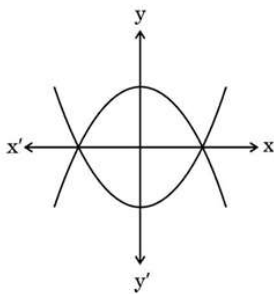**C** origin   **D** neither x-axis nor y-axis

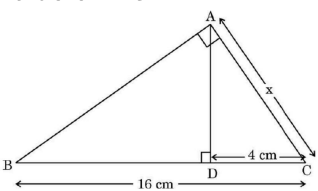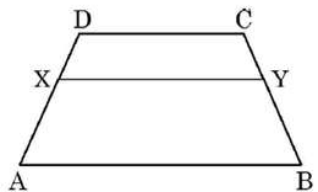**Q24.** Zeroes of the polynomial $p(x) = x^2 - 3\sqrt{2}x + 4$ are: **1 Mark**

A $2, \sqrt{2}$ **B** $2\sqrt{2}, \sqrt{2}$ **C** $4\sqrt{2}, -\sqrt{2}$ **D** $\sqrt{2}, 2$

Q25. A die is thrown once. The probability of getting a number which is not a factor of 36, is: **1 Mark**

A $\frac{1}{2}$ **B** $\frac{2}{3}$ **C** $\frac{1}{6}$ **D** $\frac{5}{6}$

Q26. If $(1)^n + (1)^8 = 0$, then n is: **1 Mark**

A any positive integer   **B** any negative integer
C any odd number   **D** any even number

Q27. If in two triangles $\triangle$ DEF and $\triangle$ PQR, $\angle$ D= $\angle$ Q and $\angle$ R = $\angle$ E, then which of the following is not   **1 Mark**
true?

A $\frac{DE}{QR} = \frac{DF}{PQ}$ **B** $\frac{EF}{PR} = \frac{DF}{PQ}$
C $\frac{EF}{RP} = \frac{DE}{QR}$ **D** $\frac{DE}{PQ} = \frac{EF}{RP}$

Q28. If the sum of first m terms of an AP is $2m^2 + 3m$, then its second term is: **1 Mark**

A 10   **B** 9   **C** 12   **D** 4

Q29. The coordinates of the end points of a diameter of a circle are (5, - 2) and (5, 2). The length of the   **1 Mark**
radius of the circle is:

A ± 2 **B** ± 4 **C** 4   **D** 2

Q30. The value of 'p' for which the equations px + 3y = p-3, 12x + py = p has infinitely many solutions is: **1 Mark**

A -6 only   **B** 6 only
C ± 6 **D** Any real number except ± 6

Q31. The distance of a point A from x-axis is 3 units. Which of the following cannot be coordinates of the   **1 Mark**
point A?

A (1, 3)   **B** (-3, -3)   **C** (-3, 3)   **D** (3, 1)

Q32. If -4 is a zero of the polynomial $p(x) = x^2 - x - (2 + 2k)$, then the value of k is: **1 Mark**

A 3   **B** 9   **C** 6   **D** -9

Q33. If $7\cos^2\theta + 3\sin^2\theta = 4$, then the value of θ is: **1 Mark**

A 30°   **B** 45°   **C** 60°   **D** 90°

Q34. If $x = 2\sin 60° \cos 60°$ and $y = 2\sin^2 30° - \cos^2 30°$ and and $x^2 = ky^2$, the value of k is: **1 Mark**

A $\sqrt{3}$ **B** $-\sqrt{3}$ **C** 3   **D** -3

Q35. Two polynomials are shown in the graph below. The number of distinct zeroes of both the polynomials   **1 Mark**
is:

A 3   **B** 5   **C** 2   **D** 4

Q36. The value of $(\tan A \csc A)^2 - (\sin A \sec A)^2$ is: **1 Mark**

A 0   **B** 1   **C** -1   **D** 2

Q37. If $x^2 + bx + b = 0$ has two real and distinct roots, then the value of b can be: **1 Mark**

A 0   B 4   C 3   D -3

Q38. $(\sqrt{3} + 2)^2(\sqrt{3} - 2)^2$ is a/ an. **1 Mark**

A positive rational number   B negative rational number
C positive irrational number   D negative irrational number

Q39. The value of $(1 - 2 \sin^2 60°)$ is same as that of: **1 Mark**

A sin 30°   B -sin 30°   C cos 60°   D -cos 30°

Q40. The quadratic equation whose roots are 7 and $\frac{1}{7}$ is: **1 Mark**

A $7x^2 - 50x + 7 = 0$ B $7x^2 - 50x + 1 = 0$ C $7x^2 + 50x - 7 = 0$ D $7x^2 + 50x - 1 = 0$

Q41. In the given figure, in $\triangle$ ABC, AD $\perp$ BC and $\angle$ BAC = 90°. If BC = 16 cm and DC = 4 cm, then the value of x is: **1 Mark**

A 4 cm   B 5 cm   C 8 cm   D 3 cm

Q42. The line represented by $\frac{x}{4} + \frac{y}{6} = 1$, intersects x - axis and y - axis respectively at P and Q. The coordinates of the mid-point of line segment PQ are: **1 Mark**

A (2,3)   B (6,2)   C (2,0)   D (0,3)

Q43. In the adjoining figure, ABCD is a trapezium in which XY || AB || CD. If $AX = \frac{2}{3}AD$, then CY : YB = **1 Mark**

A 2 : 3   B 3 : 2   C 1 : 3   D 1 : 2

Q44. If $x = ab^3$ and $y = a^3b$, where a and b are prime numbers, then [HCF (x, y) — LCM (x, y)] is equal to: **1 Mark**

A $1 - a^3b^3$ B ab (1 - ab)   C $ab - a^4b^4$ D ab (1 - ab) (1 + ab)

Q45. What is the mode of a data if median and mean of the same data are 9-6 and 10-5, respectively? **1 Mark**

A 7.8   B 12.3   C 8.4   D 7

Q46. Which of the following equations does not have a real root? **1 Mark**

A $x^2 = 0$ B 2x - 1 = 3   C $x^2 + 1 = 0$ D $x^3 + x^2 = 0$

Q47. Which of the following quadratic equations has real and equal roots? **1 Mark**

A $(x + 1)^2 = 2x + 1$ B $x^2 + x = 0$ C $x^2 - 4 = 0$ D $x^2 + x + 1 = 0$

Q48. The value of $\tan^2 \theta - \left(\frac{1}{\cos \theta} \times \sec \theta \right)$ is: **1 Mark**

A 1   B 0   C -1   D 2

Q49. **Assertion (A):** The probability of selecting a number at random from the numbers 1 to 20 is 1. **1 Mark**
Reason (R): For any event E, if P(E) = 1, then E is called a sure event.

A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).   B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
C Assertion (A) is true, but Reason (R) is false.   D Assertion (A) is false, but Reason (R) is true.

Q50. If α and β are the zeroes of polynomial $3x^2 + 6x + k$ such that $\alpha + \beta + \alpha\beta = -\frac{2}{3}$, then the value **1 Mark**
of k is:

A -8   **B** 8   **C** -4   **D** 4