Duration : 60 Min.
Total Ques. : 50
Subject Code: M 1

An ISO 9001:2015 Certified Organization

GLOBAL COMPETITION SOCIETY

10 CLASS

SAMPLE Q.P : GLOBAL MATHS OLYMPIAD (GMO)

1. The Actual Question Paper Contains 50 Questions.
2. Each question carry an equal marks of 2 against 50 question
3. The Duration of the Test Paper is 60 Minutes

1. Which of the following represent the largest 4 digit number which can be added to 7249 in order to make the derived number divisible by each of 12, 14, 21, 33 and 54?

(A) 9123 (B) 9383
(C) 8727 (D) All of these
(E) None of these

2. A number 10x + y is multiplied by another number 10a + b and the result comes as 100 p + 10q + r, where r = 2y, q = 2 (x + y) and p = 2x; x, y < 5, q ≠ 0.The value of 10a + b may be

(A) 11 (B) 13
(C) 31 (D) 22
(E) None of these

3. The real number r = $\frac{\sqrt{3}+\sqrt{5}}{\sqrt{3+\sqrt{5}}}$ satisfies the inequalitv _____.

(A) $\sqrt{2} < r < 2$ (B) $\frac{1}{\sqrt{2}} < r < \sqrt{2}$
(C) $2 < r < \sqrt{5}$ (D) $\sqrt{5} < r < 3$
(E) None of these

4. If α and β are the roots of the equation $x^2 - px + q = 0$, then the quadratic equation whose roots are $\frac{\alpha}{\beta}$ and $\frac{\beta}{\alpha}$ is _____.

(A) $qx^2 - px + 1 = 0$
(B) $qx^2 + (p^2 - 2q)x + q = 0$
(C) $qx^2 + (2q - p^2)x + q = 0$
(D) $px^2 + (2p^2 - q^2)x + q = 0$
(E) None of these

5. α and β are two numbers such that α + β = 6, α − β = 8. Then α and β are the roots of the quadratic equation _____.

(A) $x^2 + 6x + 7 = 0$ (B) $x^2 - 6x - 7 = 0$
(C) $x^2 + 6x - 8 = 0$ (D) $x^2 - 6x + 8 = 0$
(E) None of these

6. The ratio between a two-digit number and the sum of digits of that number is 4 : 1. If the digit in the unit place is 3 more than the digit in the ten's place, what is the number ?

(A) 63 (B) 36
(C) 24 (D) 40
(E) None of these

7. At the end of the year 2002, Ram was half old as his grandpa. The sum of the years in which they were born is 3854. Age of Ram at the end of year 2003 is _____.

(A) 50 years
(B) 35 years
(C) 51 years
(D) 36 years
(E) None of these

8. Every point on the line representing the linear equation in two variables

(A) may not be a solution of the equation
(B) is solution of the equation
(C) is a solution if it is also a point on x-axis
(D) is a solution of the equation if it is also a point on y-axis
(E) None of these

9. There are two positive numbers such that sum of twice the first and thrice the second is 39, while the sum of thrice the first and twice the second is 36. The larger of the two is

(A) 6
(B) 8
(C) 9
(D) 10
(E) None of these

10. The value of k for which the system of equations : $2x + 3y = 5$; $4x + ky = 10$ has an infinite number of solutions, is _____.

(A) 1
(B) 3
(C) 6
(D) 0
(E) None of these

11. The denominator of a rational number is greater than its numerator by 3. If 3 is subtracted from the numerator and 2 is added to the denominator, the new number becomes $\frac{1}{5}$. Then the original fraction was _____.

(A) $\frac{7}{11}$ (B) $\frac{3}{5}$
(C) $\frac{5}{8}$ (D) $\frac{4}{7}$
(E) None of these

12. If α, β are the root of the equation $x^2 + x\sqrt{a+\beta}$ = 0, then value of α and β are

(A) $\alpha = 1, \beta = -1$ (B) $\alpha = 1, \beta = -2$
(C) $\alpha = 2, \beta = 1$ (D) $\alpha = 2, \beta = -2$
(E) None of these

13. If the equation $x^2 - (2 + m)x + (m^2 - 4m + 4) = 0$ has coincident root, then

(A) m = 0 (B) m = 0, 2
(C) m = 6, 2 (D) m = 2, 6
(E) None of these

14. If A.M. of α, β is A and $\alpha\beta = G^2$, then quadratic equation whose roots are α and β is

(A) $x^2 - Ax + G^2 = 0$
(B) $x^2 - 2Ax + G^2 = 0$
(C) $x^2 - Ax - G^2 = 0$
(D) $x^2 - 2Ax - G^2 = 0$
(E) None of these

15. In a quadratic equation with leading coefficient 1, Aseem reads the co-efficient 16 of x wrongly as 19 and obtains the roots as – 15 and –4. The correct roots are

(A) 6, 10 (B) –6, – 10
(C) 8, 8 (D) –8, –8
(E) None of these

16. If a non zero root of the equation $x^2 + 2x + 3\lambda = 0$ and $2x^2 + 3x + 5\lambda = 0$ is common, the value of λ will be

(A) 2 (B) 1
(C) –1 (D) 0
(E) None of these

17. The sum of the first four terms of an AP is 28 and sum of the first eight terms of the same AP is 88. Sum of first 16 terms of the AP is

(A) 346 (B) 340
(C) 304 (D) 268
(E) None of these

18. The first term of an AP of consecutive integers is $p^2 + 1$. The sum of $2p + 1$ terms of this AP is

(A) $(p + 1)^2$ (B) $(2p + 1)(p + 1)^2$
(C) $(p + 1)^3$ (D) $p^3 + (p + 1)^3$
(E) None of these

19. If the sum of first n terms of an AP is $An + Bn^2$ where A and B are constants, the common difference of AP will be

(A) A + B (B) A – B
(C) 2A (D) 2B
(E) None of these

20. If the sum of first n even natural numbers is equal to K times the sum of first n odd natural numbers, then K is equal to _____.

(A) $\frac{1}{n}$ (B) $\frac{n-1}{n}$
(C) $\frac{n+1}{2n}$ (D) $\frac{n+1}{n}$
(E) None of these