Test / Exam Name: Mcqs Test | Standard: 11th Science | Subject: Mathematics

Q1. If $\sqrt{a+ib} = x+iy$, then possible value of $\sqrt{a-ib}$ is:

A x^2+y^2 **B** $\sqrt{x^2+y^2}$
C $x+iy$ **D** $x-iy$
E $\sqrt{x^2-y^2}$

Q2. The sum of two complex numbers a + ib and c + id is purely imaginary if

A a + c = 0 **B** a + d = 0 **C** b + d = 0 **D** b + c = 0

Q3. According to De Moivre's theorem what is the value of $z^{\frac{1}{n}}$ **1 Mark**

A $r^{\frac{1}{n}}\left[\cos 2kn+\theta)+i\sin(2kn+\theta)\right]$ **B** $r^{\frac{1}{n}}\left[\frac{\cos 2kn+\theta)}{n}-\frac{i\sin(2kn+\theta)}{n}\right]$
C $r^{\frac{1}{n}}\left[\frac{\cos 2kn+\theta)}{n}+\frac{i\sin(2kn+\theta)}{n}\right]$ **D** $r^{\frac{1}{n}}\left[\cos 2kn+\theta)-i\sin(2kn+\theta)\right]$

Q4. A quadratic equation $ax^2 + bx + c = 0$ has two distinct real roots, if **1 Mark**

A a = 0 **B** $b^2 - 4ac = 0$ **C** $b^2 - 4ac < 0$ **D** $b^2 - 4ac > 0$

Q5. The argument of every complex number is: **1 Mark**

A Double valued **B** Single valued **C** Many valued **D** Triple valued

Q6. The number of solutions of $x^2 + |x-1| = 1$ is: **1 Mark**

A 0 **B** 1 **C** 2 **D** 3

Q7. 6i is point on _____? **1 Mark**

A x - axis **B** y - axis **C** z - axis **D** any axis

Q8. If, $(a+1)x^2+2(a+1)x+a-2=0$ then, for what parameter of 'a' the given equation have equal roots? **1 Mark**

A $(-\infty,-1)$ **B** $[-1,\infty)$
C $(0,1)$ **D** Not possible

Q9. Roots of a quadratic equation are real when discriminant is _____ **1 Mark**

A zero **B** greater than zero
C less than zero **D** greater than or equal to zero

Q10. The number of roots of the equation $\frac{(x+2)(x-5)}{(x+3)(x+6)} = \frac{x-2}{x+4}$ is: **1 Mark**

A 0 **B** 1 **C** 2 **D** 3

Q11. If x is a real number and |x| < 5, then: **1 Mark**

A $x \geq 5$ **B** $-5 < x < 5$ **C** $x \leq -5$ **D** $-5 \leq x \leq 5$

Q12. Choose the correct answer. **1 Mark**
If $|x+2| \leq 9$, then:

A $x \in (-7,11)$ **B** $x \in [-11,7]$
C $x \in [-\infty,-7) \cup (11,\infty)$ **D** $x \in (-\infty,-7) \cup [11,\infty)$

Q13. Choose the correct answer. **1 Mark**

Solution of a linear inequality in variable x is represented on number line.

A $x \in [-\infty, 5)$ **B** $x \in (-\infty, 5)$

C $x \in (5, \infty)$ **D** $x \in [5, \infty)$

Q14. Choose the correct answer. **1 Mark**

If |x - 1| > 5, then:

A $x \in (-4, 6)$ **B** $x \in [-4, 6]$

C $x \in [-\infty, -4) \cup (6, \infty)$ **D** $x \in [-\infty, -4) \cup [6, \infty)$

Q15. If |x−1| x - 1 > 5, then: **1 Mark**

A $x \in (-4, 6)$ **B** $x \in [-4, 6]$

C $x \in (-\infty, -4) \cup (6, \infty)$ **D** $x \in (-\infty, -4) \cup [6, \infty)$

Q16. The solution set of the inequation $|x + 2| \leq 5$ is: **1 Mark**

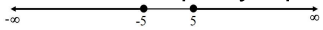
A (-7, 5) **B** [-7, 3] **C** [-5, 5] **D** (-7, 3)

Q17. If $|x + 3| \geq 10$, then: **1 Mark**

A $x \in (-12, 7]$ **B** $x \in (-13, 7)$

C $x \in (\infty, -13) \cup (7, \infty)$ **D** $x \in (-\infty, -13] \cup [7, \infty)$

Q18. The linear inequality representing the solution set given in Fig. is: **1 Mark**



A $|x| < 5$ **B** $|x| > 5$ **C** $|x| \geq 5$ **D** $|x| \geq 5$

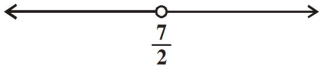
Q19. If − 3x + 17 < -13, then: **1 Mark**

A $x \in (10, \infty)$ **B** $x \in [10, \infty)$

C $x \in (-\infty, 10]$ **D** $x \in [-10, 10)$

Q20. Choose the correct answer. **1 Mark**

Solution of a linear inequality in variable x is represented on number line.



A $x \in \left(-\infty, \frac{7}{2}\right)$ **B** $x \in \left(-\infty, \frac{7}{2}\right]$

C $x \in \left(\frac{7}{2}, -\infty\right)$ **D** $x \in \left(\frac{7}{2}, \infty\right)$

Q21. If ${}^{k}+5P_{k+1} = \frac{11(k-3)}{2}.\ {}^{k+3}P_{k}$, then the values of k are: **1 Mark**

A 7 and 11 **B** 6 and 7 **C** 2 and 11 **D** 2 and 6

Q22. Choose the correct answer. **1 Mark**

The number of different four digit numbers that can be formed with the digits 2, 3, 4, 7 and using each digit only once is:

A 120 **B** 96 **C** 24 **D** 100

Q23. If in a group of n distinct objects, the number of arrangements of 4 objects is 12 times the number of arrangements of 2 objects, then the number of objects is: **1 Mark**

A 10 **B** 8 **C** 6 **D** None of these

Q24. The number of ways to arrange the letters of the word CHEESE are: **1 Mark**

A 120 **B** 240 **C** 720 **D** 6

Q25. Choose the correct answer. **1 Mark**

A five digit number divisible by 3 is to be formed using the numbers 0, 1, 2, 3, 4 and 5 without repetitions. The total number of ways this can be done is.

[**Hint:** 5 digit numbers can be formed using digits 0, 1, 2, 4, 5 or by using digits 1, 2, 3, 4, 5 since sum of digits in these cases is divisible by 3.]

A 216 **B** 600 **C** 240 **D** 3125c

Q26. The number of parallelograms that can be formed from a set of four parallel lines intersecting another set of three parallel lines is: **1 Mark**

A 6 **B** 9 **C** 12 **D** 18

Q27. The number of arrangements of the letters of the word BHARAT taking 3 at a time is: **1 Mark**

A 72 **B** 120 **C** 14 **D** None of these.

Q28. Choose the correct answer. **1 Mark**
The number of words which can be formed out of the letters of the word ARTICLE, so that vowels occupy the even place is.

A 1440 **B** 144 **C** 7! **D** ${}^4C_4 \times {}^3C_3$

Q29. The number of arrangements of the word "DELHI" in which E precedes I is: **1 Mark**

A 30 **B** 60 **C** 120 **D** 59

Q30. The number of words from the letters of the word 'BHARAT' in which B and H will never come together, is: **1 Mark**

A 360 **B** 240 **C** 120 **D** None of these.

Q31. If the sum of first two terms of an infinite G.P. is 1 and every term is twice the sum of all the successive terms, then its first term is: **1 Mark**

A $\frac{1}{3}$ **B** $\frac{2}{3}$ **C** $\frac{1}{4}$ **D** $\frac{3}{4}$.

Q32. In a G.P. of ever number of terms, the sum of all terms is five times the sum of the odd terms. The common ratio of the G.P. is: **1 Mark**

A $-\frac{4}{5}$ **B** $\frac{1}{5}$ **C** 4 **D** None of these.

Q33. Let S be the sum, P be the product and R be the sum of the reciprocals of 3 terms of a G.P. then $P^2R^3 : S^3$ is equal to: **1 Mark**

A 1 : 1 **B** (common ratio)^n : 1
C (First term)^2(common ratio)^2 **D** None of these.

Q34. If in an infinite G.P., first term is equal to 10 times the sum of all successive terms, the its common ratio is: **1 Mark**

A $\frac{1}{10}$ **B** $\frac{1}{11}$ **C** $\frac{1}{9}$ **D** $\frac{1}{20}$

Q35. If a, b, c are in A.P. and x, y, z are in G.P., then the value of $x^{b-c}\, y^{c-a}\, z^{a-b}$ is: **1 Mark**

A 0 **B** 1 **C** x y z **D** $x^a\, y^b\, z^c$

Q36. The sum of an infinite G.P. is 4 and the sum of the cubes of its terms is 92. The common ratio of original G.P. is: **1 Mark**

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

Q37. The product $(32), (32)^{\frac{1}{6}}(32)^{\frac{1}{36}} \ldots$ to ∞ is equal to: **1 Mark**

A 64 **B** 16 **C** 32 **D** 0

Q38. The value of $9^{\frac{1}{3}}.9^{\frac{1}{9}}.9^{\frac{1}{27}} \ldots$ to ∞, is: **1 Mark**

A 1 **B** 3 **C** 9 **D** None of these.

Q39. If S be the sum, P the product and R be the sum of the reciprocals of n terms of a G.P. then P^2 is equal to: **1 Mark**

A $\frac{S}{R}$ **B** $\frac{R}{S}$
C $\left(\frac{R}{S}\right)^n$ **D** $\left(\frac{S}{R}\right)^n$.

Q40. The nth term of a G.P. is 128 and the sum of its n terms is 225. If its common ratio is 2, then its first term is: **1 Mark**

A 1 **B** 3 **C** 8 **D** None of these.

Q41. Choose the correct answers from the given four option: **1 Mark**
If sets A and B are defined as $A = \left\{(x, y)|y = \frac{1}{x}, 0 \neq x \in R\right\}$ $B = \{(x, y)|y = -x, x \in R\}$, then

A $A \cap B = A$ **B** $A \cap B = B$
C $A \cap B = \phi$ **D** $A \cup B = A$

Q42. Choose the correct answers from the given four option: **1 Mark**
Let F_1 be the set of parallelograms, F_2 the set of rectangles, F_3 the set of rhombuses, F_4 the set of squares and F_5 the set of trapeziums in a plane. Then F_1 may be equal to,

A $F_2 \cap F_3$ **B** $F_3 \cap F_4$
C $F_2 \cup F_5$ **D** $F_2 \cup F_3 \cup F_4 \cup F_1$

Q43. Choose the correct answers from the given four option: **1 Mark**
If A = {1, 3, 5, 7, 9, 11, 13, 15, 17} B = {2, 4, ..., 18} and N the set of natural numbers is the universal set, then $A' \cup (A \cup B) \cup B')$ is

A ϕ **B** N **C** A **D** B

Q44. Choose the correct answers from the given four option: **1 Mark**
Let S = {x | x is a positive multiple of 3 less than 100} P = {x | x is a prime number less than 20}.
Then n(S) + n(P) is.

A 34 **B** 31 **C** 33 **D** 30

Q45. Choose the correct answers from the given four option: **1 Mark**
The set $(A \cap B')' \cup (B \cap C)$ is equal to.

A $A' \cup B \cup C$ **B** $A' \cup B$
C $A' \cup C'$ **D** $A' \cap B$

Q46. Choose the correct answers from the given four option: **1 Mark**
If A and B are two sets, then $A \cap (A \cup B)$ equals.

A A **B** B
C ϕ **D** $A \cap B$

Q47. If n(A) = 115, n(B) = 326, n(A - B) = 47 then n(A ∪ B) is equal to: **1 Mark**

A 373 **B** 165 **C** 370 **D** None

Q48. Which of the following two sets are equal? **1 Mark**

A A = {1, 2} and B = {1} **B** A = {1, 2} and B = {1, 2, 3}
C A = {1, 2, 3} and B = {2, 1, 3} **D** A = {1, 2, 4} and B = {1, 2, 3}

Q49. If A = {1, 2, 3, 4, 5, 6}, B = {2, 4, 6, 8}, then A - B will be: **1 Mark**

A {1, 3, 5, 8} **B** {1, 3, 5} **C** {1, 2, 3, 4, 5, 6, 8} **D** = {}

Q50. Let A and B be two sets such that A ∩ B = ϕ. Find the value of (A ∪ B′) = **1 Mark**

A A′ **B** B **C** ϕ **D** none of these.

Q51. $8 \sin \frac{x}{8} \cos \frac{x}{2} \cos \frac{x}{4} \cos \frac{x}{8}$ is equal to: **1 Mark**

A $8 \cos x$ **B** $\cos x$ **C** $8 \sin x$ **D** $\sin x$

Q52. The angle between the minute and hour hands of a clock at 8 : 30 is: **1 Mark**

A 80° **B** 75° **C** 60° **D** 105°

Q53. $2(1-2\sin^2 7x)\sin 3x$ is equal to: **1 Mark**

A $\sin 17x - \sin 11x$ **B** $\sin 11x - \sin 17x$
C $\cos 17x - \cos 11x$ **D** $\cos 17x + \cos 11x$

Q54. For all real values of x, $\cot x - 2\cot$ is equal to: **1 Mark**

A $\tan 2x$ **B** $\tan x$ **C** $-\cot 3?x$ **D** None of these

Q55. The value of $\frac{2(\sin 2x+2\cos^2 x-1)}{\cos x-\sin x-\cos 3x+\sin 3x}$ is: **1 Mark**

A $\cos x$ **B** $\sec x$
C $\operatorname{cosec} x$ **D** $\sin x$

Q56. The value of $\frac{\cos 3x}{2\cos 2x-1}$ is equal to: **1 Mark**

A $\cos x$ **B** $\sin x$ **C** $\tan x$ **D** None of these

Q57. $\frac{\sec 8A-1}{\sec 4A-1}$ is equal to: **1 Mark**

A $\frac{\tan 2A}{\tan 8A}$ **B** $\frac{\tan 8A}{\tan 2A}$
C $\frac{\cot 8A}{\cot 2A}$ **D** None of these

Q58. If $\cos x = -\frac{1}{2}$ and $0 < x < 2\pi$, then the solutions are: **1 Mark**

A $x = \frac{\pi}{3}, \frac{4\pi}{3}$ **B** $x = \frac{2\pi}{3}, \frac{4\pi}{3}$
C $x = \frac{2\pi}{3}, \frac{7\pi}{3}$ **D** $\theta = \frac{2\pi}{3}, \frac{5\pi}{3}$

Q59. The value of $\sin^2\left(\frac{\pi}{18}\right) + \sin^2\left(\frac{\pi}{9}\right) + \sin^2\left(\frac{7\pi}{18}\right) + \sin^2\left(\frac{4\pi}{9}\right)$ is: **1 Mark**

A 1 **B** 2 **C** 3 **D** None of these

Q60. If $x\sin 45^\circ \cos^2 60^\circ = \frac{\tan^2 60^\circ \operatorname{cosec} 30^\circ}{\sec 45^\circ \cot^2 30^\circ}$, then x = **1 Mark**

A 2 **B** 4 **C** 8 **D** 16