MULTIPLE CHOICE QUESTIONS (MCQ'S)

1. Who introduced the Symbol 0 (Zero) _____.
   (a) British (b) French (c) Arabs (d) German
2. The rational numbers were introduced by _____.
   (a) Arabs (1550 BC) (b) Greek (1550 BC)
   (c) Egyptian (1550 BC) (d) Indian (1550 BC)
3. "π" is a/an _____ Number.
   (a) Odd (b) prime (c) Rational (d) Irrational
4. The Set R closed w.r.to _____.
   (a) Division (b) Multiplication
   (c) Subtraction (d) Addition
5. Natural numbers are called _____ integers.
   (a) Positive (b) Negative (c) Odd (d) Even
6. The factors of $(4x^2 + 9y^2)$ is the Set of Complex numbers are _____.
   (a) $(2x + 3y)^2$ (b) $(2x - 3yi)^2$
   (c) $(2x - 3iy)(2x + 3iy)$ (d) $(2x + 3yi)^2$
7. Which is the identity element w.r to ordinary addition _____.
   (a) 0 (b) 1 (c) −1 (d) $-\frac{1}{2}$
8. If $Z_1 = 4 - 3i$ and $Z_2 = -1 + 2i$ then $\frac{Z_1}{Z_2}$ = _____.
   (a) $4 + 3i$ (b) $2 - i$ (c) $-2 - i$ (d) $-2 + i$
9. If $Z_1 = 1 + i$ and $Z_2 = 3 - 2i$ then find the value of $|5z_1 - 4Z_2|$ = _____.
   (a) $\sqrt{218}$ (b) 310 (c) $\sqrt{312}$ (d) 218
10. The Conjugate and Modulus of the Complex number $-7 + i$ are _____ and _____.
    (a) $-7 - i, 5\sqrt{2}$ (b) 3/5 , 7
    (c) 320 (d) $-252, \sqrt{2}$
11. $\sqrt{2}$ is _____ a/an number.
    (a) Rational (b) Irrational (c) Odd (d) Even
12. A number x is an _____ if $x \in N$, $x = 0$ or $x \in -N$.
    (a) Integers (b) Whole (c) Prime (d) Even

13. (0, 0) is the identity in Complex number w.r to _____.
    (a) Addition (b) Subtraction
    (c) Multiplication (d) division
14. (1, 0) is the identity in complex number w.r to _____.
    (a) Addition (b) Subtraction
    (c) Multiplication (d) Division
15. The number $\sqrt{n}$, when n is Even positive number is _____.
    (a) Rational (b) Irrational
    (c) Imaginary (d) Integer
16. The number $\sqrt{n}$, where n is odd positive number is _____.
    (a) Rational (b) Irrational (c) Imaginary (d) Integer
17. The number $\sqrt{n}$, where n is a prime number is _____.
    (a) Rational (b) Irrational
    (c) Imaginary (d) Integer
18. e is a/an _____ number.
    (a) Rational (b) Irrational
    (c) Imaginary (d) Integers
19. The additive inverse of (a, b) is _____.
    (a) (−a, b) (b) (a , − b) (c) (−a, − b) (d) (o ,b)
20. $\overline{Z_1 + Z_2}$ = _____.
    (a) $\overline{Z_1}$, $\overline{Z_2}$ (b) $\overline{Z_1} - \overline{Z_2}$ (c) $Z_1 + Z_2$ (d) $\overline{Z_1} + \overline{Z_2}$
21. $\overline{Z_1 \cdot Z_2}$ = _____.
    (a) $\overline{Z_1} \cdot \overline{Z_2}$ (b) $\overline{Z_1 + Z_2}$
    (c) $\overline{Z_1} + \overline{Z_2}$ (d) None of these
22. $Z \cdot \overline{Z_1}$ = _____.
    (a) O (b) $|Z\,\overline{Z}|$
    (c) $|Z|^2$ (d) None of these
23. Express $x^2 + y^2 = a^2$ in terms of conjugate Coordinates _____.
    (a) $Z + \overline{Z}$ (b) $Z\overline{Z} = a^2$ (b) $Z - \overline{Z}$ (d) $Z\overline{Z} = 0$
24. Subtract (4 + i) from (2 − 3i) = _____.
    (a) 2 + 4i (b) − 2 + 4i (c) 3 + 5i (d) − 2 − 4i

25. $\sqrt{-1}$ = _____.
(a) 0 (b) i (c) – i (d) 1

26. The product of a real number and i is also an _____ number.
(a) Real (b) odd
(c) Imaginary (d) None of these

27. The additive identity of real number is _____.
(a) 1 (b) 0
(c) –1 (d) None of these

28. The multiplicative identity of real number is _____.
(a) 0 (b) –1
(c) 1 (d) None of these

29. Additive identity of 0 is _____.
(a) 0 (b) 1
(c) –1 (d) None of these

30. Solution of equation $x^2 + 1 = 0$ belongs to _____ numbers.
(a) Natural (b) Integers (c) Complex (d) Rational

31. Additive inverse of a + ib is _____.
(a) 1 + 0i (b) – a – bi (c) 0 + i (d) 1 + i

32. The real and imaginary parts of i (3 + 2i) = _____.
(a) – 5, – i (b) 5, 2 (c) – 252 (d) –2, 3

33. Complex number can be written in the form of _____.
(a) Ordered pair (b) Set
(c) Interval (d) None of these

34. Commutative property w.r to addition of Complex number. $Z_1 + Z_2$ = _____.
(a) $Z_2 + Z_1$ (b) $Z_1 - Z_2$
(c) $\overline{Z_1} + \overline{Z_2}$ (d) None of these

35. Associative property w.r to addition of complex number $(Z_1 + Z_2) = Z_3$ = _____.
(a) $Z_1 + (Z_2 + Z_3)$ (b) $(Z_1 + Z_3) + Z_2$
(c) $(Z_1 + Z_2 + Z_3)$ (d) $Z_1 - (Z_2 + Z_3)$

36. Associative property w.r to multiplication of Complex numbers $(Z_1 . Z_2) . Z_3$ = _____.
(a) $Z_1 . (Z_2 . Z_3)$ (b) $(Z_1 . Z_2 . Z_3)$
(c) $(Z_1 . Z_2) . Z_3$ (d) None of these

37. _____ is called the inverse of Z with respect to multiplication of Complex number.
(a) Z^{-2} (b) Z
(c) Z^{-1} (d) None of these

38. Real and Imaginary part of $(x + iy)^3$ are _____ and _____.
(a) $(x^3 + 3xy^2)$ and $(3x^2y + y^3)$
(b) $(x^3 + 3xy^2)$ and $(3x^2y - y^3)$
(c) $(x^3 - 3xy^2)$ and $(3x^2y - y^3)$
(d) $(x^3 - 3xy^2)$ and $(3x^2y - y^3)$

39. $\overline{(\overline{Z})}$ = _____.
(a) $\overline{Z}$ (b) Z^{-1} (c) Z (d) Z^{-2}

40. If (x, y) (2, 3) = (–4, 7) then x = _____ and y = _____.
(a) x = 5, y = 2 (b) x = –1, y = –2
(c) x = 0, y = 0 (d) x = 1, y = 2

41. Modulus of the Complex number a + ib is _____.
(a) a – ib (b) $a^2 + b^2$ (c) $\sqrt{a^2 + b^2}$ (d) $\sqrt{a^2 + ib^2}$

42. If Z = 3 + 4i then $|\overline{Z}|^2$ = _____.
(a) 25 (b) $\sqrt{5}$ (c) 6 (d) 5

43. If Z = (1, 2) then Z^{-1} = _____.
(a) $\left(\frac{-1}{5}, \frac{2}{5}\right)$ (b) $\left(\frac{1}{5}, \frac{2}{5}\right)$
(c) $\left(\frac{-1}{5}, \frac{-2}{5}\right)$ (d) $\left(\frac{-1}{5}, \frac{-2}{5}\right)$

44. The multiplicative inverse of (a, b) is _____.
(a) $\left(\frac{a}{b}, \frac{-a}{b}\right)$ (b) $\left(\frac{1}{a}, \frac{1}{b}\right)$
(c) $\left(\frac{a}{a^2 + b^2}, \frac{-b}{a^2 + b^2}\right)$ (d) $\left(\frac{1}{a^2}, \frac{1}{b^2}\right)$

45. The Conjugate of a Complex number (a ,b) is _____.
(a) (–a , – b) (b) (a, –b) (c) (–a , b) (d) $\left(\frac{a}{b}, \frac{b}{a}\right)$

46. The Conjugate of a Complex number – 7 + i is _____.
(a) – 7 – i (b) 7 – i (c) 7 + i (d) $\sqrt{50}$

47. (a, b) . (c, d) is equal to _____.
(a) (ac – bd, ad – bc) (b) (ac – bd, ad – bc)
(c) (ac + bd, ad + bc) (d) (ac – bd, ad – bc)

48. (a, b) + (c, d) is equal to _____.
(a) $\left(\frac{ac+bd}{c^2+d^2}, \frac{bc+ad}{c^2+d^2}\right)$ (b) $\left(\frac{ac-bd}{c^2+d^2}, \frac{bc+ad}{c^2+d^2}\right)$
(c) $\left(\frac{ac+bd}{c^2+d^2}, \frac{bc-ad}{c^2+d^2}\right)$ (d) $\left(\frac{ac-bd}{c^2+d^2}, \frac{bc-ad}{c^2+d^2}\right)$

49. Which is the Complex number whose additive and multiplicative inverses are equal?
(a) (1, 0) or (−1, 0) (b) (0, 1) or (0, −1)
(c) (1, 0) (d) (0, −1)

50. Is the Set C Closed under _____.
(a) Addition (b) Subtraction
(c) Multiplication (d) Division

51. For what value of x is (x + 3, 3) is equal to (−5, 3) _____.
(a) −7 (b) −2 (c) −8 (d) −5

52. Imaginary part of a complex number $\frac{\sqrt{3}+i}{\sqrt{3}-i}$ is _____.
(a) $\frac{1}{2}$ (b) $\frac{\sqrt{3}}{2}$ (c) $-\frac{\sqrt{3}}{2}$ (d) $-\frac{1}{2}$

53. The factor of $3m^2 + 8t^2$ in Complex form are:
(a) $(\sqrt{3m} + 4it)(\sqrt{3m} - 4it)$
(b) $(\sqrt{3m} + \sqrt{8}\,it)(\sqrt{3m} - \sqrt{3}\,it)$
(c) $(\sqrt{3m} + 2\sqrt{2}\,ti)(\sqrt{3m} - 2\sqrt{2}\,ti)$
(d) $\sqrt{3m} + \sqrt{8}\,it$

54. The value of i^3 is equal to _____.
(a) 1 (b) −i (c) 1 (d) −1

55. Roots of $x^2 + 16 = 0$ are _____.
(a) 4i and − 4i (b) 2i and − 2i
(c) 4i and −2i (d) None of these

56. Additive inverse of (0, 0) is _____.
(a) (a, 0) (b) (0, 1)
(c) (0, 0) (d) does not exist

57. Multiplicative inverse of (0, 0) is _____.
(a) (1, 0) (b) (0, 1) (c) (0, 0)
(d) Does not exist

58. Is 12Z > 5Z ? = _____
(a) Yes (b) No (c) meaning less
(d) None of these

59. If $3x - 12y = (7 + i)^2$ then x = _____.
(a) 16 (b) $\frac{50}{3}$ (c) −7 (d) 7

60. If Z = 3 + 4i then $Z + \overline{Z}$ = _____.
(a) 6 (b) 8i
(c) 0 (d) None of these

61. (a, b) . $\left(\frac{a}{a^2+b^2}, \frac{-b}{a^2+b^2}\right)$ = _____
(a) (0, 0) (b) (0, 1) (c) (1, 0) (d) (1,1)

62. The additive inverse of i = _____.
(a) (0, −1) or −i (b) (1, 0) or i
(c) $\frac{-1}{i}$ (d) (1, 0)

63. $Z + \overline{Z}$ = _____ $\forall Z \in C$
(a) purely real (b) purely Imaginary
(c) 2Z (d) $2\overline{Z}$

64. $Z - \overline{Z}$ = _____ $\forall Z \in C$
(a) purely real (b) purely Imaginary
(c) Zero (d) None of these

65. Every real number is also a _____ number.
(a) Rational (b) prime (c) Irrational (d) Complex

66. The modulus of a Complex Number is _____.
(a) Conjugate of Complex Number
(b) Distance from the Origin to the point representing the number
(c) The additive inverse of the Complex Number
(d) The multiplicative inverse of Complex Number

67. The Set {i, − i} possesses closure property w.r to _____.
(a) Addition (b) Multiplication
(c) Subtraction (d) None of the above

68. The set of Real numbers R = _____.
(a) QUI (b) Q∩I (c) Q − I
(d) None of these

69. C = R × R = { (a, b) / a, b ∈ R} is called the Set of _____ numbers.
(a) Real (b) Complex (c) Natural
(d) None of these

70. Distributive property of multiplication over addition of Complex numbers Z_1, Z_2 and Z_3 is $Z_1 (Z_2 + Z_3) =$ _____.
(a) $Z_1 Z_2 Z_3$ (b) $Z_1 Z_2 - Z_1 Z_3$
(c) $Z_1 Z_2 + Z_1 Z_3$ (d) None of these

71. $\overline{\left(\frac{Z_1}{Z_2}\right)} =$ _____.
(a) $Z_1 Z_2^{-1}$ (b) $\frac{Z_1}{Z_2}$
(c) $\frac{\overline{Z_1}}{\overline{Z_2}}$ (d) None of these

72. $|Z_1 Z_2| =$ _____
(a) $|Z_1||Z_2|$ (b) $|\overline{Z_1 Z_2}|$
(c) $|Z_1 - Z_2|$ (d) None of these

73. $\left|\frac{Z_1}{Z_2}\right| =$ _____.
(a) $\left|\frac{Z_2}{Z_1}\right|$ (b) $\frac{|Z_1|}{|Z_2|}$ (c) $|Z_1 Z_2|$ (d) $|Z_1 Z_2^{-1}|$

74. The decimal 4.314 is _____.
(a) Non – Terminating (b) Terminating
(c) Recurring (d) None of these

75. The decimal $0.\overline{3}$ is _____.
(a) Non-Terminating (b) Terminating
(c) Recurring (d) Non-Terminating Non-Recurring

76. Real part of Complex Number $(x + iy)^2$ is _____.
(a) x (b) x^2 (c) $x^2 + y^2$ (d) $x^2 - y^2$

77. The value of $(1 - i)^4$ is equal to _____.
(a) 4 (b) –4 (c) 1 – i (d) 1 + i

78. Natural numbers do not holds commutative law under _____.
(a) Addition (b) Subtraction
(c) Multiplication (d) Division

79. Is Subtraction associative in R.
(a) Yes (b) No
(c) Neither (d) None of these

80. If (a, b) = (c, d) then a = c, b = d.
(a) True (b) False
(c) Neither (d) None of these

81. $i^2 + i^4 =$ _____.
(a) –1 (b) 1 (c) 2 (d) 0

82. $5i^2 + 4i^3 + 3i^4 =$ _____.
(a) – 2 – 4i (b) 2 – 4i (c) – 2 + 4i (d) 0

83. $i^{14} + i^{15} + i^{16} + i^{17} =$ _____.
(a) i (b) 1 + i (c) 0 (d) 1 – 2i

84. The imaginary part of $(x + 2yi)^2$ is _____.
(a) 4xy (b) – 4xy
(c) $x^2 - 4y^2$ (d) None of these

85. If $(3 + 4i)^2 + (3 - 4i)^2$ then Imaginary part = _____.
(a) 10 (b) 5 (c) –1 (d) 0

86. If Z = 3 + 4i then $(\overline{Z})^2 =$ _____.
(a) 9 + 16i (b) – 7 – 24i (c) 7 – 24i (d) 24 – 7i

87. If x = 2 + 3i and y = 2 – 3i then $x^2 + y^2 =$ _____
(a) 10 (b) –10 (c) 12i (d) 10i

88. If Z = a + ib, Then $Z^2 + (\overline{Z})^2 =$ _____.
(a) $2[a^2 - b^2]$ (b) $2[a^2 + b^2]$
(c) $-2[a^2 + b^2]$ (d) None of these

89. $\sqrt{2} - i + i(\sqrt{2}i - 1) =$ _____.
(a) 2i (b) –2i (c) –2 (d) 2

90. the real part of $(x + iy)^2 =$
(a) $x^2 + y^2$ (b) 2xy
(c) $x^2 - 4y^2$ (d) None of these

91. $\frac{\sqrt{2} + i}{\sqrt{2} - i} =$ _____.
(a) $\frac{1}{2} - \sqrt{3}i$ (b) 3 + 5i
(c) $\frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2}i$ (d) $\frac{1}{3} + \frac{2\sqrt{2}}{3}$

Answers

1.	c	2.	c	3.	d	4.	b	5.	a
6.	c	7.	a	8.	c	9.	a	10.	a
11.	b	12.	a	13.	a	14.	c	15.	a
16.	b	17.	b	18.	b	19.	c	20.	d
21.	a	22.	c	23.	b	24.	d	25.	b
26.	c	27.	b	28.	c	29.	a	30.	c
31.	b	32.	d	33.	a	34.	a	35.	a
36.	a	37.	c	38.	d	39.	c	40.	d
41.	c	42.	d	43.	c	44.	c	45.	b
46.	a	47.	b	48.	c	49.	b	50.	d
51.	c	52.	b	53.	c	54.	b	55.	a
56.	c	57.	d	58.	c	59.	a	60.	a
61.	c	62.	a	63.	a	64.	b	65.	d
66.	b	67.	d	68.	a	69.	b	70.	c
71.	c	72.	a	73.	b	74.	b	75.	c
76.	d	77.	b	78.	b	79.	b	80.	a
81.	d	82.	a	83.	c	84.	a	85.	d
86.	b	87.	b	88.	a	89.	b	90.	a
91.	d								