

Chapter 2 **REAL AND COMPLEX NUMBER SYSTEMS**

- 1) $\sqrt{3}$ is
 A) Rational
 B) Irrational
 C) Integer
 D) Prime

Answer: B

- 2) Product $\sqrt{-2} \times \sqrt{-2}$ is equal to

- A) -2
 B) 2
 C) 0
 D) 4

Answer: A

- 3) $|Z_1 Z_2| =$

- A) $|Z_1| |Z_2|$
 B) $|Z_1| + |Z_2|$
 C) $|Z_1| - |Z_2|$
 D) $\frac{|Z_1|}{|Z_2|}$

Answer: A

- 4) If $x < y, y < z$ then

- A) $x > z$
 B) $x < z$
 C) $x = z$
 D) none of these

Answer: B

- 5) $|Z_1 + Z_2|$ is

- A) $|Z_1| + |Z_2|$
 B) $> |Z_1| + |Z_2|$
 C) $\leq |Z_1| + |Z_2|$
 D) $|Z_1| \times |Z_2|$

Answer: A

- 6) $(-i)^5$ is

- A) i
 B) -1
 C) 1
 D) -i

Answer: D

- 6) The conjugate of $-6 + 3i$

- A) $-6 - 3i$
 B) $-6 + 3i$

- C) $6 + 3i$
 D) $6 - 3i$

Answer: A

- 7) The solution set of $5x + 8 = 0$ when $x \in \mathbb{N}$ is

- A) non empty set
 B) $-\frac{8}{5}$
 C) $\frac{8}{5}$

- D) empty set

Answer: D

- 8) For all $x, y, z \in \mathbb{R}$, if $(x y) z = x (y z)$ then this property is called

- A) Commutative property under multiplication
 B) Associative under multiplication
 C) Distributive under multiplication
 D) Commutative under addition

Answer: B

- 9) The additive inverse of a complex number $x + yi$

- A) $x - iy$
 B) $x + iy$
 C) $-x - iy$
 D) $\{x/x^2 + y^2, -y/x^2 + y^2\}$

Answer: C

- 10) The conjugate of a complex number $5i$

- A) -5
 B) $5i$
 C) $-5i$
 D) 5

Answer: C

- 11) The property used in this equation $3 \times 7 = 7 \times 3$ is called

- A) Closure law
 B) Commutative law for addition
 C) Commutative property w.r.t multiplication
 D) Identity

Answer: C

- 12) The additive inverse of $(-x, -y)$ is

- A) $(-x, -y)$
 B) (x, y)
 C) $(-x, 0)$
 D) $(x, -y)$

Answer: B

- 13) The property used in the equation $8 + 0 = 8$ is called

- A) Commutative
 B) Associative
 C) Additive Identity
 D) Additive Inverse

Answer: C

14) For all $a, b, c \in \mathbb{R}$, if $(a + b) + c = a + (b + c)$ then the property is called

- A) Commutative under addition
- B) Associative w.r.t addition
- C) Distributive under addition
- D) None of these

Answer: B

15) The inverse of an element 'a' under addition is

- A) $\frac{1}{a}$
- B) $-a$
- C) 1
- D) 0

Answer: B

16) The additive identity is

- A) 0
- B) -1
- C) 1
- D) none of these

Answer: A

17) The product of two conjugate complex numbers is always a

- A) Real number
- B) Complex number
- C) Irrational number
- D) Natural number

Answer: A

18) The sum of two conjugate complex numbers is always a

- A) Real number
- B) Irrational number
- C) Complex number
- D) Natural number

Answer: A

19) $\left| \frac{1+2i}{2-i} \right| =$

- A) 1
- B) 5
- C) $\frac{3}{4}$
- D) $\frac{5}{3}$

Answer: A

20) If Z_1, Z_2 be complex numbers then $\overline{Z_1 + Z_2} =$

- A) $\overline{Z_1} - \overline{Z_2}$
- B) $\overline{Z_1} + \overline{Z_2}$
- C) $\overline{Z_1} + Z_2$
- D) $Z_1 - \overline{Z_2}$

Answer: B

21) If $z = (a, b)$, then $z^{-1} =$

- A) $(a, -b)$
- B) $(-a, b)$
- C) $\left(\frac{a}{a^2 + b^2}, \frac{-b}{a^2 + b^2} \right)$
- D) $\left(\frac{-a}{a^2 + b^2}, \frac{b}{a^2 + b^2} \right)$

Answer: C

22) If $z = a + bi$, then $|z| =$

- A) $a^2 - b^2$
- B) $a^2 + b^2$
- C) $\sqrt{a^2 - b^2}$
- D) $\sqrt{a^2 + b^2}$

Answer: D

23) If z_1 and z_2 are any two complex numbers then

- A) $|z_1| - |z_2|$
- B) $< |z_1 + z_2|$
- C) $\leq |z_1 + z_2|$
- D) $> |z_1 + z_2|$
- E) $\geq |z_1 + z_2|$

Answer: B

24) $(-i)^{15} =$

- A) 1
- B) -1
- C) i
- D) $-i$

Answer: C

25) If $z_1 = (a, b)$ and $z_2 = (c, d)$ then $z_1 z_2 =$

- A) $(ac - bd, ad + bc)$
- B) $(ac + bd, cd - bc)$
- C) $(ad + bc, ac - bd)$
- D) $(ad - bd, ac + bd)$

Answer: A

26) $2x^2 + 3y^2 =$

- A) $(2x + 3iy)(2x - 3iy)$

B) $(\sqrt{2}x + \sqrt{3}iy)(\sqrt{2}x - \sqrt{3}iy)$

C) $(2x - 3y)(2x + 3y)$

D) $(\sqrt{2}x + \sqrt{3}y)(\sqrt{2}x - \sqrt{3}yi)$

Answer: B

27) $\pi \in$ _____

A) N

B) Q

C) Q'

D) none

Answer: C

28) $\forall x \in R, x = x$ is called _____ property.

A) symmetric

B) reflexive

C) transitive

D) none

Answer: A

29) Every recurring ϵ' terminating decimal represents

A) Q

B) Q'

C) R

D) none

Answer: A

30) The complex No. $(a + ib)$ can be written as _____

A) (a, ib)

B) $\{a, b\}$

C) (a, b)

D) $[a, b]$

Answer: C

31) The imaginary part of the complex Nos. (b, a) is _____

A) ia

B) b

C) a

D) none

Answer: C

32) If $Z = i$ then $\overline{\overline{Z}} =$ _____

A) i

B) $-i$

C) ± 1

D) none

Answer: A

33) If $Z = -\overline{Z}$ then Z is _____

A) real

B) imaginary

C) neither type

D) none of these

Answer: B

34) If $Z = -1 - i$ then $\overline{Z} =$ _____

A) $(-1, -1)$

B) $(-1, 1)$

C) $(1, -1)$

D) none

Answer: B

35) $|i| =$ _____

A) -1

B) 1

C) 0

D) i

Answer: B

36) The magnitude of $\frac{1+2i}{i}$ is _____

A) $5 + 2i$

B) -1

C) $\sqrt{3}$

D) none

Answer: C

37) If $x \neq 0$, then multiplicative inverse of x is _____

A) $\frac{1}{x}$

B) $-x$

C) 1

D) 0

E) none

Answer: D

38) The real & imaginary part of $\frac{1}{2+i} + \frac{3}{2-i}$ is _____

A) $\frac{5}{8}, \frac{2}{5}$

B) $\frac{5}{8}, \frac{-2}{5}$

C) $\frac{8}{5}, \frac{2}{5}$

D) none

Answer: C

39) The value of $i^n =$ _____ where n is an odd No.

A) $-i$

B) $+i$

C) $\pm i$

D) none

Answer: D

- 40) If the area of triangle is 16, formed by the points Z , $Z+iZ$ and iZ in a complex plane, then $|Z| =$ _____
- A) 16
 - B) $5\sqrt{3}$
 - C) $4\sqrt{2}$
 - D) none

Answer: C

- 41) if $x + iy = 5 - 6i^{2k}$, then imaginary part (y) = _____

- A) -6
- B) 6
- C) 0
- D) none

Answer: C

- 42) A real number is always

- A) a natural no
- B) positive integer
- C) Rational number
- D) complex number

Answer: D

- 43) The property used in the equation $7.8 + (-7.8) = 0$ is

- A) Commutative
- B) Associative
- C) Additive Identity
- D) Additive inverse

Answer: D