**Q.No.1 Encircle the correct option. Cutting, over writing and use of lead pencil is not allowed.**

**1.** (x + *i*y)n = ?

**(a)** rn (cos  + *i* sin ) **(b)** xn + *i*yn **(c)** rn cisn  **(d)** xn − *i*yn

**2.** If Z1 = 1 + 2*i*, Z2 = 2 + *i* then ⎯ = ?

**(a)** − **(b)** **(c)** −5*i* **(d)** 5*i*

**3.** The multiplicative inverse of ,− is:

**(a)** , **(b)** , **(c)** ,− **(d)** ,

**4.** If Z = , then arg (Z) = ?+

**(a)** 60° **(b)** 90° **(c)** 180° **(d)** 45°

**5.** The modulus of is:

**(a)** 1 **(b)** **(c)** 2 **(d)**

**6.** In circle, the ratio between circumference to it’s radius is:

**(a)**  **(b)**  **(c)** **(d)**

**7.** The value of Imaginary part of is

**(a)**  **(b)** **(c)** **(d)**

**8.** The conjugate of is

**(a)** **(b)** **(c)** **(d)**

**9.** The ancient Egyptians used the symbol “11111” for:

**(a)** 50 **(b)** 100 **(c)** 150 **(d)** None of these

**10.** |x + *i* y| =:

**(a)** **(b)** **(c)** **(d)** None of these

**Q. No. 02 Attempt any 10 Short Questions**

**1.** Prove that is an irrational number, where n is a prime number.

**2.** State Properties of Real numbers w. r. t in- eqality.

**3.** Prove that ab = 0 ⇒ a = 0 ∨ b = 0 for any real numbers a, b

**4.** Simplify by justifying each step

**5.** Find the multiplicative inverse of (a,  b).

**6.** Simplify: (2, 6) ÷ (3, 7)

**7.** Prove that Sum as well as the product of two conjugate complex numbers is a real number.

**8.** Factorize 9a2 + 16b2.

**9.** Separate into real and Imaginary Parts:

**10.** Simplify: −−

**11.** Find the modulus of – 5*i.*

**12.** ∀ z1, z2 ∈ C show that | z1.z2 | = | z1|.| z2 |

**13.** Express x + y*i* in polar form of complex number.

**14.** State De Moivre’s Theorem.

**15.** Express the complex number 1 + *i* .

**Answer key**

1.c 2.c 3.b 4.c 5.a 6.c 7. 8.b 9.d 10.d