** SREE AYYAPPA EDUCATION CENTRE (CBSE)**

9/15, Medarahalli, Abbigere Main Road, Chikkabanavara P O, Bengaluru – 90

**UNIT TEST – II (2024 - 25)**

**Sub : Mathematics**

**CLASS: XI MARKS: 30**

**DATE: 16-07-2024 TIME: 1 Hr**

***General Instructions***

* *This question paper contains 14 questions. All questions are compulsory.*
* *This question paper is divided into 5 sections - Section A, B, C, D and E.*
  + *Section A: Q. Nos. 1 to 6 are* ***M****ultiple* ***C****hoice* ***Q****uestions carrying* ***1*** *mark each.*
  + *Section B: Q. Nos. 7 to 9 are* ***S****hort* ***A****nswer* ***T****ype questions carrying* ***2*** *marks each.*
  + *Section C: Q. Nos. 10 to 12 are also* ***S****hort* ***A****nswer* ***T****ype questions carrying* ***3*** *marks each.*
  + *Section D: Q. No. 13 is a* ***L****ong* ***A****nswer* ***T****ype question carries* ***5*** *marks*
  + *Section E: Q. No. 14 is a* ***C****ase* ***S****tudy-****B****ased* ***Q****uestion of* ***4*** *marks in total.*
* *Use of log tables is permitted, if necessary, but use of calculator is not permitted.*

**Section A**

1. **Choose the correct answer:**
2. The range of the function is
3. Let R be a relation from a set B to set A, then
4. The conjugate of the complex number is . Then, that complex number is
5. If , then the sum upto 1000 terms is
6. 1
7. 0
8. is equal to
9. Assertion (A): The number of radians in an angle subtended by an arc of a circle at the centre is equal to

Reason (R): Every real number can be considered as radian measure of some angle.

1. A is true, R is true, R is a correct explanation of A.
2. A is true, R is true, R is not a correct explanation of A.
3. A is true, R is false.
4. A is false, R is true.

**Section B**

1. **Answer the following:**
2. Plot the graph of the following functions
3. where is greatest integer function
4. If the radius of the circle is 45 cm then find the length of an arc of this circle whose chord is 45 cm.
5. If then find the number of subsets of A and list them.

**Section C**

1. If . Verify De-Morgan’s law.
2. If R = Write R in roster form and find its domain and range.
3. Find the domain and range of

**Section D**

1. Let A and b be any two sets. Then show that

**Section E**

1. A class teacher Mamtha Sharma of class XI writes three sets A, B, C such that

,

and

Answer the following questions which are based on above sets.

* + 1. Find
    2. Find
    3. A relation defined by Is ‘ ’a function? Justify your answer.

**Or**

* + 1. Let R be a relation from **Q** to **Q** defined by . Show that

1. implies that