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**Roll No. \_\_\_\_\_\_\_\_\_\_\_\_**

**BCA - 1217**

**B.C.A. (I Semester) Examination, Dec. 2018**

**COMPUTER APPLICATION (BACKPAPER)**

**Mathematics**

*Time Allowed: Three Hours] [Maximum Marks: 70*

**Note:** Answer **all** questions.

**Q. 1.** Attempt any six of the following  **5 \* 6= 30**

1. Differentiate between union and intersection.
2. Briefly explain Set, represent a set A={1,4,9,16,25} in Set builder form.
3. Draw a Venn Diagram of the following

**(i)** (AUBUC.) **(ii)** A’UB

1. What is Set relation?, explain with the help of an example.
2. Draw a diagraph of R={(1,2),(2,3),(3,4),(1,4),(1,3).
3. Differentiate between minimal and maximal elements with the help of an example.
4. Briefly explain basic trigonometric function.
5. Explain order of differential equation with the help of an example.

**Q. 2.** What is the Cartesian product A×B×C, where A={0,1}, B= {1, 2}, and C={0,1,2}? **10**

**OR**

The bit string for the set {1, 3, 5, 7, 9} (with universal set {1, 2, 3, 4, 5, 6, 7, 8, 9, 10})

is 1010101010. What is the bit string for the complement of this set?

**Q. 3.** What are the types of relation? explain each with the help of an example. **10**

**OR**

 For f(x)=2x+3 and g(x)= -x 2 + 1, find the composite function defined by (f o g)(x).

**Q. 4.** Draw a Hasse diagram for (A,) (divisibility relation), where **10**

 (i) A = {1, 2, 3, 4, 5, 6, 7, 8} (ii) A = {2, 3, 4, 5, 6, 30, 60}

 (iii) A = {1, 2, 4, 8, 16, 32, 64} (iv) A = {1, 2, 3, 5, 11, 13}

**OR**

Consider the poset ({3, 5, 9, 15, 24, 45},), that is, the divisibility relation.

1. Draw its Hasse diagram.
2. Find its maxima, minima, greatest and least elements when they exist.

**Q. 5.** Explain chain rule with the help of an example. **10**

**OR**

Find a partial differential equation by eliminating a and b from the equation

Z= ax+ by+ a2 +b2.