MODEL PAPER I 2016
BCA PART-II
Subject: Discrete Mathematics

Time: 3:00 hrs **M.M. 100**

[I] Very Short type: **[2*10=20]**

Q.1 What do you mean by number system?
Q.2 What is recurrence relation?
Q.3 Define codomain and range of a function.
Q.4 Define power set.
Q.5 what is lema?
Q.6 Write Absorption law.
Q.7 what is planer graph.
Q.8 Find number of edges in complete graph of 6 vertex.
Q.9 Write methods to find MST.
Q.10 What is binary tree.

[II] Short type: **[4*5=20]**

Q.1 Find Product of 1011 and 011 in binary
Q.2 For the sets A,B,C prove that
A x (B U C) = (A x B) U (A x C)
Q.3 State and prove Modus Ponnens law.
Q.4 Explain Isomorphic graph with example.
Q.5 Explain Binary Expression Tree.

[**III] Long Type:** **[12*5=60]**

Q.1 Prove by mathematical induction that n(n+1)(2n+1) is divisible by 6.

Q.2 If 100 of the 130 students of computer science at a college take at least one of the language PHP,JAVA or .NET . Suppose 65 study PHP, 45 study JAVA and 42 study .NET. If 20 study PHP and JAVA both, 25 study .NET and JAVA both and 15 study .NET and PHP both. Find the number of students who study all the 3 languages.

Q.3 **Prove distributive law for proposition.**

Q.4 Explain Euler and hamiltonion grphs.Also explain TSP.

Q.5 What is game tree. Explain in detail.