KMM INSTITUTE OF POST GRADUATE STUDIES::TIRUPATI

Affiliated to S.V. University, Tirupati

Department of MCA

MCA I Semester \ II- Internal \ Discrete Mathematical Structures

Time: 75 Min **Subject Code : (MCA 101)** **Max Marks: 40**

Section-I

Answer any two questions **2X5=10**

1. Write the differences between Permutation & Combination?
2. State and Prove Inclusion Exclusion Principle?
3. How many 3 digits numbers can be formed from the digits 1,2,3,4,5 assuming
   i) Repetitions of digits are allowed ii)Repetitions of digits are not allowed
4. Explain the two fundamental Principles of Counting?
   i) In how many ways does can we draw a Heart or a Spade from an ordinary deck of cards?
   ii) In how many ways can we draw a numbered card or a King card?

Section-II

Answer any Three questions **3x10=30**

5. Show that i) $nPr = n!/(n-r)!$ ii) $nCr = nPr/r! = n!/(n-r)!r!$
6. State and prove Binomial theorem?
7. a) Find n if ${}^{n-1}P_3 : {}^{n}P_4 = 1:9$?

   b)Find r if $5\,P_r = 2 \times {}^{6}P_{r-1}$

8. Among 50 patients admitted to a hospital, 25 are diagnosed with pneumonia, 30 with bronchitis, and 10 with both pneumonia and bronchitis. Determine:

(a) The number of patients diagnosed with pneumonia or bronchitis (or both).

(b) The number of patients not diagnosed with pneumonia or bronchitis.

(c) Number of patients diagnosed with only pneumonia

(d) Number of students diagnosed with only bronchitis

NOTE:- ANSWER THE QUESTIONS IN A NEAT WHITE PAPER TAKE A SNAP SHOT OF THE QUESTIONS ANSWERED CONVERT IT TO PDF FILE AND MAIL IT TO :

ananthgvs2004@gmail.com

PLEASE SAVE THE PDF FILE WITH STUDENT NAME WHILE ATTACHING TO MY MAIL.