**BMA1202**

**DISCRETE MATHEMATICS CAT**

Attempt all questions

a) What is proposition? (2 Marks)

b) Given that p and q are propositions construct the truth table of; (4 Marks)

1. 
2. 

c) Draw the graph represented by the adjacency matrix . (3 Marks)

d) According to information obtained from mathematics department regarding three mathematics units done by 100 students, those who are doing calculus are 45, those doing discrete are 49 and those doing statistics are 38. Those doing calculus and discrete are 17, those doing calculus and statistics are 12 and those doing the three units are 5. Use Venn diagram to find the number of students doing discrete and statistics but not calculus. (7 Marks)

e) In how many ways can one select 7 member committee from 10 distinct persons if only three persons qualify to be chairperson? (4 Marks)

f) Prove that the conditional proposition and its contrapositive are logically equivalent suing the truth table. (6 Marks)

g) Prove by mathematical induction the formula;

 (4marks)