

DEPARTMENT OF MATHEMATICS  
NATIONAL INSTITUTE OF TECHNOLOGY KURUKSHETRA

B. Tech. Semester-III (CS, IT)  
Course Title: Discrete Mathematical and Statistical Methods  
Course Code: MAIC-201

Mid Term Examination-I  
M.M.:20  
Time: 06.30 p.m.-07.20 p.m.

NOTE: Attempt all the Questions. Each question carries equal marks.

1. A survey of 80 students showed the following : 40 had completed course A, 24 had completed course B, 28 had completed course C. Further, among those who had completed course A, 8 had completed course B, 11 had completed course C, and 5 had completed all three courses. Finally the survey showed that 12 of those who had completed course B had also completed course C. How many students studied none of the three courses?
2. State and prove Baye's theorem.
3. In a bolt factory, machine A, B and C manufacture 24%, 37% and 43% of the total. Of their output 5%, 4% and 3% are defective bolts. A bolt is drawn at random from the product and is found to be defective. What are the probabilities that it was manufactured by machines A, B or C?
4. Fit a Poisson's distribution to the following data:

x:	0	1	2	3
f:	122	60	15	2.