MAS 2466/2436   **Time: 3 hours**

BUSINESS MATHEMATICS (CMC)   **Max marks: 75**

Answer any FIVE Questions: $(5 \times 15 = 75 \text{marks})$

1. If A = {1,2,3,5}, B = {2,3,4,6} and C = {1,2,4,5,7) then verify the Distributive law and draw the Venn diagram.

2. Consider an economy of 2 industries P and Q where the data of rupees is given below.

	User		Final Demand	Total Product
Producer	P	Q	D	
P	14	6	8	28
Q	7	18	11	36

   Find the output if the final demand changes to 20 for P and 30 for Q.

3. Use the method of least squares and fit a straight line trend to the following data given from 82 to 92. Hence estimate the trend vales for 1993.

Year	82	83	84	85	86	87	88	89	90	91	92
Production	45	46	44	47	42	41	39	42	45	40	48

4. . (a) State and Prove Baye 's Theorem.

   (b) A random experiment consists in drawing a card from an ordinary pack of 52 playing cards. Let the probability set function p assign a probability of 1/ 52 to each of the 52 possible outcomes. Let A denote the collection of 13 hearts and let B denote the collection of 4 kings. Compute (i) P(A)   (ii) P(B)

(iii) P (A∩ B)   (iv) P(A ∪ B).

5. Two dice numbered as 1, 2, 3, 4, 5, 6 on the faces are thrown. Let A be the event that the sum of the points on the faces shown is odd and B is the event that at least one number is 1. Find the probability of the following:

    (i) A∩ B   (ii) A ∪ B   (iii) A ∩ $\bar{B}$ (iv) $\bar{A}$ ∩ $\bar{B}$ (v) A / B   (vi) B /A

6. A group of 10 rats fed on a diet A and another group of 8 tats fed on a different diet B recorded the following increase in weights in gms. (t $_{0.05}$(16) = 2.12)

Diet A	5	6	8	1	12	4	3	9	6	10
Diet B	2	3	6	8	1	10	2	8	-	-

Test whether diet A is superior to diet B.

7. The following table gives the number of train accidents in a country that occurred during the various days of the week. Find whether the accidents are uniformly distributed over the week $(\chi^2_{.05}(6) = 12.592)$

Days	Sun	Mon	Tue	Wed	Thur	Fri	Sat
No. of accidents	20	18	13	23	26	11	15

****