FACULTY OF MANAGEMENT
M.B.A. I – Semester Examination, December 2013

Course No. – 1.5
Subject : Statistics for Management

Time : 3 Hours   **Max. Marks: 80**

PART – A (10x2=20 Marks)

1. Write short notes on the following in about 80 words each and at one place only.
    (a) Conditional probability   (f) Point and Interval estimation
    (b) Statistical independence   (g) Properties of t-distribution
    (c) Mathematical expectation   (h) Significance level
    (d) Constants of Binomial distribution   (i) Properties of regression coefficients
    (e) Sampling distribution   (j) Multiplicative model of time series analysis

PART – B (5x12=60 Marks)
Answer all the questions using the internal choice .

2.(a) State and explain Baye's probability theorem.
OR
  (b)   A committee of four has to be formed from among 3 economist, 4 engineers, 2 statisticians and a doctor.
        (i) What is the probability that each of the four professions is represented on the committee?
        (ii) What is the probability that the committee consists of the doctor and at least one economist?

3.(a) In a certain factory turning out razor blades, there is a small chance of 1/100 for any blade to be defective. The blades are supplied in packets of 10. Use Poisson distribution to calculate the number of packets containing (i) no defective, (ii) one defective and (iii) two defective blades, respectively in a consignment of 25,000 packets.
OR
  (b)   1,000 lights bulbs with a mean life of 120 days are installed in a new factory; their length of life is normally distributed with standard deviation of 20 days. (i) How many bulbs will expire in less than 100 days? (ii) if it is decided to replace all the bulbs together, what interval should be allowed between replacements if not more than 10% should expire before replacement?

4.(a) What is sampling? Explain the merits and limitations of sampling.
OR
  (b)   You are given the following information relating to purchase of bulbs from two manufacturers A and B:

Manufacturer	No. of bulbs bought	Mean life	Standard deviation
A	1000	5900 hrs	200 hrs
B	1200	5600 hrs	175 hrs

Is there a significant difference in the mean life of two makes of bulbs?

5.(a) A drug is given to 12 patients, and the increments in their blood pressure were recorded to be -2, 5, -2, 4, -3, 4, 6, 0, 0, 1, -4 and -1. Is it reasonable to believe that the drug has no effect on change of blood pressure? (Use 5% value of t for 9 d.f=2.26)
OR
  (b)   The number of automobile accidents per week in a certain community were as follows: 12, 8, 20, 4, 15, 5, 10, 7, 8, 3. Are these frequencies in agreement with the belief that accident conditions were the same during this 10 week period?

6.(a) Find out the two regression equations from the following data:

	Average	Standard deviation
Production (in lakh units)	45.6	12.2
Capacity utilization (%)	74.8	8.5

Correlation coefficient = 0.652

Also estimate the production, when capacity utilization is 75%.
OR
  (b)   From the following data, fit a trend line equation of Y= a + bx model

Year	2005	2006	2007	2008	2009	2010	2011
Profits(Rs.'000)	100	120	150	85	92	102	110

Also estimate the production in 2020.

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