C 42875 (Pages : 2) Name.....

Reg. No.....

FIRST SEMESTER M.Com. DEGREE EXAMINATION, MAY 2013

Paper 1.2—QUANTITATIVE TECHNIQUES

(2004 Admission onwards)

Time : Three Hours Maximum : 80 Marks

Part A

Answer **all** *questions. Each question carries 2 marks.*

1. List down any four business applications of probability.
2. Where Binomial distribution can be used ?
3. What is a "range chart" ?
4. List down the advantages of regression analysis.
5. What is called "Wolfowitz test" in Statistics ?

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions. Each question carries 10 marks.*

6. (a) Discuss the basic concepts of probability.

   (b) A bag contains 5 white and 3 black balls. Two balls are drawn at random one after the other without replacement. Find the probability that both balls drawn are black.

7. (a) List down the significance of normal distribution.

   (b) Assume the mean height of soldiers to be 68.22 inches with a variance of 10.8 inches. How many soldiers in a regiment of 1000 would you expect is being over six feet tall ? Fit in a normal distribution.

8. Write notes on the following :

   (a) Standard error.

   (b) Central limit theorem.

   (c) Paired observations.

9. Making use of the data summarized below, calculate the co-efficient of correlation, n_2 :

Case	X_1	X_2	Case	X_1	X_2
A	10	9	E	12	11
B	6	4	F	13	13
C	9	6	G	11	8
D	10	9	H	9	4

Turn over

10. In an anti dengue campaign in a certain area, quinine was administered to 812 persons out of a total population of 3,248. The number of fever cases is shown below :

Treatment	Fever	No Fever	Total
Quinine	20	792	812
No Quinine	220	2216	2436

Discuss the usefulness of quinine in checking dengue.

11. Define Binomial distribution and note down its key characteristics.

(4 × 10 = 40 marks)

Part C

Answer any **two** *questions.*
Each question carries 15 marks.

12. The following data give the experience of machine operators and their performance rating as given by the number of good parts turned out per 100 pieces :

Operator	1	2	3	4	5	6	7	8
Experience (X)	16	12	18	4	3	10	5	12
Performance Rating (Y)	87	88	89	68	78	80	75	83

Calculate the regression lines of performance ratings on experience and estimate the probable performance if an operator has 7 years of experience.

13. A machine is set to deliver the packets of a given weight. Ten samples of size five each were examined and the following results were obtained :

Sample	1	2	3	4	5	6	7	8	9	10
Mean	15	17	15	18	17	14	18	15	17	5
Range	7	7	4	9	8	7	12	3	11	5

Calculate the values for the central line and the control limits for the mean chart and range chart. Comment on the state of control.

14. Define acceptance sampling and its uses ? How does SQC help to handle variations due to various causes ?

(2 × 15 = 30 marks)