I Semester M.B.A. Examination, Sept. 2016
C – 5 : STATISTICS AND OPTIMIZATION TECHNIQUES (New)

Time : 3 Hours   Max. Marks : 80

SECTION – A

1. Answer **any five** sub-questions. **Each** sub-question carries **3** marks.   **(5×3=15)**
   a) Define intra quartile range.
   b) What is range ?
   c) Differentiate between regression and correlation.
   d) What is safety stock ?
   e) Define network.
   f) State the limitations of OR.
   g) What is a random variable ?

SECTION – B

Answer **any four** questions. **Each** question carries **5** marks.   **(4×5=20)**

2. Find the mean, median and mode for the following distribution

Class Interval	0-10	10-20	20-30	30-40	40-50
Frequency	45	20	14	7	3

3. Explain the various inventory management techniques.

4. It is known that IQ of college students is uniformly distributed normally with mean of 110 and standard deviation of 15. What is the probability that
   a) A college student selected at random will have IQ greater than 130 ?
   b) How many students have IQ less than 90 ?

5. Explain various terminologies used in queuing theory.

6. Players A and B play a game in which each players has three coins 20 P, 25 P, 50 P. Each of them selects a coin without the knowledge of the other person. If the sum of the values of the coins is an even number, A wins B's coin. If that sum is an odd number, B wins A's coin. Formulate the game and solve.

7. Discuss decision making under uncertainty.

SECTION – C

Answer **any three** questions. **Each** question carries **10** marks. **(10×3=30)**

8. Two judges in a beauty contest ranked 15 participants as follows :

X	1	2	3	4	5	6	7	8	9	10
Y	5	8	10	6	1	9	7	2	4	3

Using rank correlation method calculate the degree of correlation.

9. An insurance salesman sells policies to 5 men all of identical age and good health. According to the actuarial tables, the probability that a man of this particular age will be alive up to 30 years is 2/3. Find probability :
   a) At least one man will be alive.
   b) At least 3 men will be alive.

10. Differentiate between Poisson distribution and binominal distribution.

11. Explain construction of different types of graphic presentation of statistical data.

12. Obtain the regression equation from the following data and estimate the blood pressure when age is 50 years

Age	56	42	72	39	63	47	52	49	40	42	68	60
BP	127	112	140	118	129	116	130	125	115	120	135	133

SECTION – D

13. Case (compulsory) : **(1×15=15)**

A small maintenance project consists of the following jobs, whose precedence relationships are given below :

Job	1-2	1-3	2-3	2-5	3-4	3-6	4-5	4-6	5-6	6-7
Duration	15	15	3	5	8	12	1	14	3	14

1) Draw an arrow diagram representing the project.
2) Find the critical path and total duration.
3) Estimate the various types of floats.

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