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Name of the Candidate :

M.B.A. DEGREE EXAMINATION MAY 2014.

(HUMAN RESOURCE MANAGEMENT)

(FIRST YEAR)

160 — BUSINESS MATHEMATICS AND STATISTICS

(Common with MBA Marketing Mgt. and MBA Financing Mgt.)

Time : Three hours

Maximum : 75 marks

SECTION A

Answer any FIVE questions.

(5 × 3 = 15)

All questions carry equal marks.

1. (a) State the addition and multiplication theorem of matrix.
(b) What are the uses of Venn diagram?
(c) State the addition and multiplication theorem of probability.
(d) Define standard error and give its application.
(e) What is test of significance? Explain.
(f) Differentiate decision making under risk and decision making under uncertainty.
(g) What are the components of time series?
(h) List the principles of statistical quality control.

SECTION B

Answer any THREE questions.

(3 × 10 = 30)

All questions carry equal marks.

2. Probability that a man will be alive 25 years is 0.3 and the probability that his wife will be alive 25 years is 0.4. Find the probability that 25 years hence
(a) both will be alive (b) only the man will be alive (c) only the woman will be alive and (d) atleast one of them will be alive.
3. Explain the following with examples:
(a) Disjoint sets
(b) Union of sets
(c) Intersection of sets
(d) Compliment of a set.

4. Intelligence test given to two groups of boys and girls gave the following information.

	Mean score	SD	Number
Girls	75	10	50
Boys	70	12	100

Is the difference in the mean scores of boys and girls statistically significant at 5% level?

5. Given the bivariate data.

x :	1	5	3	2	1	1	7	3
y :	6	1	0	0	1	2	1	5

- (a) Fit a regressing equation of y on x .
- (b) If a person has scored 8 on x variable what would be this score on y variable.
6. Write a detailed note on statistical quality control charts for variables.

SECTION C

Answer any ONE question.

(1 × 15 = 15)

All questions carry equal marks.

7. The distribution of monthly income of 4,000 employees follows normal distribution with mean Rs. 6,000 and standard deviation Rs. 1000 find.
- (a) Number of employees having income more than Rs. 7,000
- (b) The number of employees having income less than Rs. 5,500
- (c) The least monthly income among the highest paid 100 employees.
8. Given are the figures of production (in million tonnes) of a cement factory.

Year	1997	1998	1999	2000	2001	2002	2003	2004
Production	77	88	94	85	91	98	96	101

- (a) Fit a straight line trend by the least squares method and tabulate the trend values.
- (b) Estimate the production is 2005 and 2006.
- (c) Draw the trend line.

9. Use the Kruskal Wallis test to test for differences in mean among the three samples. If $\alpha = 0.01$, what are your conclusions?

Sample I	95	97	99	98	99	99	94
Sample II	104	102	102	105	99	102	103
Sample III	119	130	132	136	141	172	150

SECTION D

Compulsory.

(1 × 15 = 15)

10. The following is a pay off (in rupees) table for three strategies and two states of nature.

Strategy	State of Nature	
	N1	N2
S1	40	60
S2	10	-20
S3	-40	150

Select the best alternative based on:

- (a) Maximax
- (b) Maxmin
- (c) Minimax regret
- (d) Laplace criterion.