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14MBA14

First Semester MBA Degree Examination, Dec.2014/Jan.2015
Business Analytics

Time: 3 hrs.

Max. Marks:100

SECTION – A

Note: Answer any FOUR questions from Q.No.1 to Q.No.7.

- 1 Enumerate the significance of measuring variation. (03 Marks)
- 2 What is discriminant analysis? (03 Marks)
- 3 Enumerate evaluation of business analytics. (03 Marks)
- 4 What is decision tree? What are nodes and branches? (03 Marks)
- 5 What is redundancy? (03 Marks)
- 6 What is Bayesian decision rule? (03 Marks)
- 7 What is factorial design? (03 Marks)

SECTION – B

Note: Answer any FOUR questions from Q.No.1 to Q.No.7.

- 1 Briefly explain steps of decision making process. (07 Marks)
- 2 Elucidate steps in designing single factor experimentation. (07 Marks)
- 3 Explain common errors in drawing networks. (07 Marks)
- 4 Briefly explain the nature of decision models. (07 Marks)
- 5 A firm can produce three types of cloth say A, B and C. Three kinds of woods are required for it, say red, green and blue wool. One unit length of type A cloth needs 2 meters of red wool and 3 meters of blue wool. One unit length of type B cloth needs 3 meters of red wool, 2 meters of green wool and two meter's of blue wool; and one unit of type C cloth needs 5 metres of green wool and 4 meters of blue wool. The firm has only a stock of 8 meters of red wool, 10 meters of green wool, and 15 meters of blue wool. It is assumed that the income obtained from one unit length of type A cloth is Rs.3.00 and of type B cloth is Rs.5.00 and type C cloth is Rs.4.00. Determine how the firm should use the available material so as to maximize the income from the finished cloth. (07 Marks)

- 6 Solve the following problem by using graphical method:

$$\text{Maximize } Z = 0.07x_1 + 0.10x_2$$

$$x_1 + x_2 \leq 30,000$$

$$x_1 \geq 6,000$$

$$x_2 \leq 12,000$$

$$x_1 - x_2 \geq 0$$

$$x_1, x_2 \geq 0.$$

(07 Marks)

- 7 The life time in hours of a certain electrical equipment has the normal distribution with mean = 80 and standard deviation = 16.

i) What is the probability that the equipment lasts at least 100 hrs?

ii) If the equipment has already lasted 88 hours what is the conditional probability that it will last at least another 12 hours?

(07 Marks)

SECTION – C

Note: Answer any FOUR questions from Q.No.1 to Q.No.7.

- 1 Briefly explain important areas where decision models are used in Business Analytics.

(10 Marks)

- 2 Briefly explain classification of clustering procedure.

(10 Marks)

- 3 Enumerate steps involved in conducting factor analysis.

(10 Marks)

- 4 Find the value of mean, median and mode from the data given below.

Wt (in kg) :	93- 97	98-102	103-107	108-112	113-117	118-122	123-127	128-132
No. of students :	3	5	12	17	14	6	3	1

(10 Marks)

- 5 A charitable organization decided to give old age pension to people over sixty years of age. The scale of pensions were fixed as follows:

Age group	Rs. Per Month	Frequency
60 – 65	200	7
65 – 70	250	5
70 – 75	300	6
75 – 80	350	4
80 – 85	400	3

The ages of 25 person who secured the pension right are given. Calculate monthly average pension payable per person and the standard deviation.

(10 Marks)

- 6 The table below gives a list of jobs and their duration in days.

i) Draw the network and find the critical path and its duration.

ii) Calculate ES, EF, LS, LF and total float.

(10 Marks)

Activity	a	b	c	d	e	f
Immediate predecessor	-	-	a, b	a	d	c, e
Duration (in days)	3	14	3	7	4	10

7 The following table gives a list of jobs along with their time estimates:

- Draw the project network.
- Determine the probability that the project will be completed in 45 days. (10 Marks)

Jobs	Time (in days)		
	t_o	t_m	t_p
1 - 2	4	6	8
1 - 6	5	7	15
2 - 3	4	8	12
2 - 4	15	20	25
3 - 5	10	18	26
4 - 5	8	9	16
6 - 7	4	8	12
5 - 8	1	2	3
7 - 8	6	7	8

SECTION - D

(Compulsory)

Solve the transportation problem by using VAM for feasible solution. Find the optimal solution also using MODI method.

		Per unit cost (Rs.)			
		MARKET			
		A	B	C	D
WARE HOUSE	X	13	7	19	0
	Y	17	18	15	7
	Z	11	22	14	5

Activity in Ware House

X:200 units
Y:500 units
Z:300 units

Demand in the Market

A:180 units
B:320 units
C:100 units
D:400 units

(20 Marks)
