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14MBA14

First Semester MBA Degree Examination, Dec.2015/Jan.2016

Business Analytics

Time: 3 hrs. Max. Marks:100

SECTION - A

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

1 Discuss the importance of business analytics. **(03 Marks)**

2 List out the different measures of central tendency. **(03 Marks)**

3 What do you mean by random variable? Write the broad classes of random variable. **(03 Marks)**

4 What is redundant constraint? Explain with a neat sketch. **(03 Marks)**

5 Explain what is discriminent analysis. Bring out its objectives. **(03 Marks)**

6 Explain looping and dangling errors in network. **(03 Marks)**

7 What is decision tree analysis? Bring out the two approaches used to evaluate the decision tree. **(03 Marks)**

SECTION - B

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

1 What is MDS? Bring out some important uses of MDS in marketing. **(07 Marks)**

2 Briefly explain steps of decision making process. **(07 Marks)**

3 Use the graphical method to solve the following LP Problem.

Maximize, $Z = x_1 + \frac{x_2}{2}$

S.T. $3x_1 + 2x_2 \le 12$

$x_1 + x_2 \ge 8$

$5x_1 = 10$

$-x_1 + x_2 \ge 4$

and $x_1, x_2 \ge 0$. **(07 Marks)**

4 The incidence of occupational diseases in an industry is such that the worker have 20 percent chance of suffering from it. What is the probability that out of six worker's 4 or more will come in contact of the disease? **(07 Marks)**

5 From the prices of shares of X and Y below, find out which is more stable in value.

x	35	54	52	53	56	58	52	50	51	49
y	108	107	105	105	106	107	104	103	104	101

(07 Marks)

6 Briefly explain evaluation of business analytics. **(07 Marks)**

7 Briefly explain the rules for constructing network diagram. **(07 Marks)**

SECTION - C

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

1 Solve the following assignment problem and obtain the minimum cost at which all the jobs can be performed:

Workers	Job (cost in 00 Rs)				
	1	2	3	4	5
A	25	18	32	20	21
B	34	25	21	12	17
C	20	17	20	32	16
D	20	28	20	16	27

(10 Marks)

2 A small project is composed of I activities whose time estimates are listed in the table below. Activities are identified by their beginning (i) and ending (j) node numbers.

Activity (i-j)	Estimated duration (weeks)		
	Optimistic (t_o)	Most likely (t_m)	Pessimistic (t_p)
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15

i) Draw the network diagram and its activities in project.
ii) What is the expected project length?
iii) Find out the probability of completing the project (i) at least 4 weeks earlier than expected time. **(10 Marks)**

3 Draw a network corresponding to the following information:

Activity	1-2	1-3	2-6	3-4	3-5	4-6	5-6	5-7	6-7
Duration	4	6	8	7	4	6	5	19	10

i) Draw the network.
ii) Obtain early and late start time and completion times.
iii) Determine the critical path.
iv) Determine the total float. **(10 Marks)**

4 The following table shows the ages (x) and blood pressure (y) of 8 persons.

x	52	63	45	36	72	65	47	25
y	62	53	51	25	19	43	60	33

Obtain the regression equation of y on x and find the expected blood pressure of a person who is 49 years old. **(10 Marks)**

5 The following table gives the number of days in a 50 day period during which automobile accidents occurred in a city.

Number of accidents	0	1	2	3	4
Number of days	21	18	7	3	1

Fit a Poisson distribution to the data. **(10 Marks)**

6 What is a model? Discuss three important decision models of business analytics with example. **(10 Marks)**

7 Briefly explain the types of decision making environment. **(10 Marks)**

SECTION - D
CASE STUDY – [Compulsory]

Given the following transportation problem:

Warehouse	Market			Supply
	A	B	C	
1	10	12	7	180
2	14	11	6	100
3	9	5	13	160
4	11	7	9	120
Demand	240	200	220	

It is known that currently nothing can be sent from warehouse 1 to market A and from warehouse 3 to market C.

1. Solve the above problem by using VAM. **(10 Marks)**
2. Find the optimal solution. **(10 Marks)**

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