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14MBA14

First Semester MBA Degree Examination, Dec.2016/Jan.2017
Business Analytics

Time: 3 hrs.

Max. Marks:100

SECTION - A*Note : Answer any FOUR questions from Q.No.1 to Q.No.7.*

- 1 Which is the good measure of central tendency? Give any two reasons. (03 Marks)
- 2 What is exponential distribution? Write its p.d.f (probability density function). (03 Marks)
- 3 What is cluster analysis? (03 Marks)
- 4 What is a decision tree? What are the types of decision trees? (03 Marks)
- 5 Write a note on Isoprofit line. (03 Marks)
- 6 What is dummy activity? (03 Marks)
- 7 What is the scope of analytics in Business? (03 Marks)

SECTION - B*Note : Answer any FOUR questions from Q.No.1 to Q.No.7.*

- 1 What is 'Decision theory'? Discuss the steps involved in decision making process. (07 Marks)
- 2 The following distribution gives the pattern of overtime work done by 100 employees of a company. Find the mean and median

Overtime (hrs)	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40
Number of employees	11	20	35	20	8	6

(07 Marks)

- 3 Describe the procedure for drawing a CPM network. (07 Marks)
- 4 The mean and standard deviation of the wages of 1,000 workers engaged in a factory are Rs. 1200 and Rs 400 respectively. Assuming the distribution to be normal, estimate
 - i) Percentage of workers getting wages above Rs 1600.
 - ii) Number of workers getting wages between Rs 600 and Rs 900.

The areas under normal curve for different Z are given below.

Z	0.5	0.75	1	1.5
Area	0.1915	0.2734	0.3413	0.4332

(07 Marks)

- 5 What is factor analysis? Briefly explain exploratory and confirmatory factor analysis. (07 Marks)
- 6 Discuss the different types of decision models. (07 Marks)



7 Solve the following LPP graphically

Maximize $Z = 10x_1 + 15x_2$

Subject to $2x_1 + x_2 \leq 26$

$2x_1 + 4x_2 \leq 56$

$x_1 - x_2 \geq -5$

$x_1, x_2 \geq 0.$

(07 Marks)

SECTION - C

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

1 The following data gives the prices X and Y of shares A and B respectively. Compute the coefficient of variation of X and Y and state which is more stable in value.

Price of share A (X)	55	54	52	56	58	52	50	51	49
Price of Share B (Y)	108	107	105	106	107	104	103	104	101

(10 Marks)

2 The following data relate to age of employees and the number of days they reported sick in a month. Calculate Karlpearson's coefficient of correlation and interpret it.

(10 Marks)

Age (yrs)	30	32	35	40	48	50	52	55	57	61
Sick days	1	0	2	5	2	4	6	5	7	8

3 Explain the following brief :

- i) Regression
- ii) factorial designs.

(10 Marks)

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

(10 Marks)

	Job (cost in '00 Rs)				
Worker	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

5 A project consists of nine activities whose time estimates (in weeks) and other characteristics are given below :

(10 Marks)

Activity	Preceding Activity/lies	Time estimate (Weeks)		
		Most optimistic	Most likely	Most pessimistic
A	-	2	4	6
B	-	6	6	6
C	-	6	12	24
D	A	2	5	8
E	A	11	14	23
F	B, D	8	10	12
G	B, D	3	6	9
H	C, F	9	15	27
I	E	4	10	16

- i) Show the PERT network for the project.
- ii) Identify the critical activities and find the expected project completion time and its variance.
- iii) If the project is required to be completed by December 31 of a given year and the manager wants to be 95% sure of meeting the deadline, when he should start the project work. Given $P(0 < Z < 1.645) = 0.45$.



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- 6 The probability that a pen manufactured by a company will be defective is $\frac{1}{10}$. If 12 such pens are manufactured, using binomial distribution find the probability that.
- i) Exactly two will be defective
 - ii) Atleast 3 will be defective
 - iii) Atmost 3 will be defective.
- (10 Marks)
- 7 Write a short note on the following :
- i) Data warehousing
 - ii) Linear programming
 - iii) Baye,s theorem
 - iv) Poisson distribution.
- (10 Marks)

SECTION - D
CASE STUDY – [Compulsory]

Solve the following transportation problem for maximum profit.

Ware house	Per unit profit (Rs)			
	Market			
	A	B	C	D
X	12	18	6	25
Y	8	7	10	18
Z	14	3	11	20

(20 Marks)

Availability at ware houses	Demand in the market
X : 200units	A : 180 units
Y : 500 units	B : 320 units
Z : 300 units	C : 100 units
	D : 400 units

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