PG Odd Semester (CBCS) Exam., December—2017

BUSINESS ADMINISTRATION

(1st Semester)

Course No. : MBACC–106

(Statistical Methods for Decision Making)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **all** questions

1. Distinguish between primary data and secondary data. Discuss the various methods of collecting primary data. Indicate the situations in which each of these methods should be used. 6+4+4=14

OR

2. A leading international publisher was interested in knowing the level of exposure, a book on job opportunities was receiving among management students. As part of an important research study that looked into the marketing effectiveness program, a sample survey of bookshops was carried out to estimate, on average, how many copies of this book are displayed on shelves in various bookstores. The publisher selected at random a sample of twenty universities and a further sample of five colleges offering business management programs from each of these twenty universities. Every bookstore in the vicinity of every sample college selected was personally visited and the number of books on shelves counted.

Level the sampling procedure adopted in this research study.

Examine the sampling procedure followed in this study and give your views. 7+7=14

3. Mr. Bansal is a salesperson working in a company. In the context of sales, the amount spent by him in his five trips in the past two months throws the following figures :

Trip No.	*Days*	*Amount Spent* (₹)	*Amount per day* (₹)
1	3	810	270
2	9	1620	180
3	1	700	700
4	10	1700	170
5	5	900	180
Totals	28	5730	1500

Mr. Bansal's boss felt that his expenses were very high compared to the normal spending. He said, the average spending per day of Mr. Bansal was ₹300, while other salespersons spend on an average ₹250 a day. Explain the fallacy in this problem. 14

OR

4. Construct index numbers of price from the given data by applying the following : 14

Laspeyre's method

Paasche's method

Fisher's method

Commodity	*2004*		*2005*	
	Price	*Quantity*	*Price*	*Quantity*
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

5. Two managers are asked to rank a group of employees in order of potential for eventually becoming top managers. The rankings are as follows :

Employees	*Ranking by Manager (I)*	*Ranking by Manager (II)*
A	10	9
B	2	4
C	1	2
D	4	3
E	3	1
F	6	5
G	5	6
H	8	8
I	7	7
J	9	10

Compute the coefficient of rank correlation and comment on the value. 14

OR

6. After survey it has been found that the demand for two wheelers in a city depends mainly, if not entirely upon the number of families residing in that city. The figures given below are for the sales of two wheelers in the five cities for the year 2016 and the number of families residing in those cities. Fit a linear regression equation of Y on X by the least square method and estimate the sales for the year 2017 for a city A which is estimated to have 100 lakh families assuming that the same relationship holds true. 14

City	*No. of families in lakhs* (X)	*Sales of two wheelers in '000s* (Y)
A	70	25·2
B	75	28·6
C	80	30·2
D	60	22·3
E	90	35·4

7. A company has three production facilities S_1, S_2 and S_3 with production capacity of 7, 9 and 18 units (in '000s) per week of a product respectively. These units are to be shipped to four warehouses D_1, D_2, D_3 and D_4 with requirements 5, 6, 7 and 14 units (in 100's) per week, respectively. The transportation costs (in rupees) per unit between factories to warehouse are given in the table below :

	D_1	D_2	D_3	D_4	*Capacity*
S_1	19	30	50	10	7
S_2	70	30	40	60	9
S_3	40	8	70	20	18
Demand	5	8	7	14	34

Formulate a transportation problem as on Linear Programming Model to minimize the total transportation cost. Find also the transportation cost by applying Northwest Corner Method and Least Cost Method.

6+4+4=14

8. A research and development department is developing a new power supply for a console television set. It has broken the job down into the following :

Job	*Description*	*Immediate Predecessors*	*Time* (days)
A	Determine output voltages	—	5
B	Determine whether to use solid state rectifiers	A	7
C	Choose rectifier	B	2
D	Choose filters	B	3
E	Choose transformer	C	1
F	Chose chassis	D	2
G	Choose rectifier mounting	C	1
H	Layout chassis	E, F	3
I	Build and test	G, H	10

(a) Draw the network diagram of activities involved in the project and indicate the critical path.

(b) What is the minimum completion time for the project? 8+6=14

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