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08MBA13

First Semester MBA Degree Examination, June/July 2011
Statistics for Management

Time: 3 hrs. Max. Marks:100

Note: *1. Answer any FOUR full questions from Q.No.1 to Q.No.7.*
2. Q.No. 8 is compulsory.

1 a. Define statistics. Mention the objectives of statistics. **(03 Marks)**

b. Construct a suitable bar diagram for the following data. The number of workers working in three different departments in different companies. **(07 Marks)**

Company	Departments			Total
	Marketing	HR	Accounts	
A	1200	800	600	2600
B	700	500	600	1800
C	400	700	400	1500

c. Define and distinguish primary and secondary data. Also, explain briefly the methods of collecting primary data. **(10 Marks)**

2 a. Out of 100 numbers, 20 were 4's, 40 were 5's, 30 were 6's and the remainder 7's. Find the arithmetic mean of numbers. **(03 Marks)**

Numbers:

X	20	40	30	10
F	4	5	6	7

b. What is pie-diagram? Draw a pie-diagram to represent the following data: **(07 Marks)**

Particulars	Amount spent (in 000's)
Food	40
Rent	20
Clothing	20
Education	10
Travel	05
Miscellaneous	05

c. The information given below relates to the advertisement and sales of a company:

	Advertisement Expenditure (in lakhs)	Sales (in lakhs)
Arithmetic mean	20	100
Standard deviation	3	12

Correlation coefficient = +0.8.

i) Find the two regression equations

ii) What should be the advertisement expenditure, if the company wants to reach a sales target of Rs. 120 lakhs? **(10 Marks)**

3 a. Calculate the two regression coefficients when $\gamma = 0.8$, $\sigma_x = 5$ and $\sigma_y = 7$. **(03 Marks)**

b. Define mean, median and mode. Also find the value of mode with the help of mean and median of the following frequency distribution. **(07 Marks)**

Marks	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
No. of students	4	16	48	52	57	18	9	4

c. The following data relate to the prices and quantities of 4 commodities in the years 2008 and 2009. Construct the following index numbers of price for the year 2009 and taking 2008 as base, i) Laspeyre's index ii) Paasche's index and iii) Fisher's ideal index. **(10 Marks)**

Commodity	2008		2009	
	Price	Quantity	Price	Quantity
A	5.0	100	6	150
B	4.0	80	5	100
C	2.5	60	5	72
D	12.0	30	9	33

4 a. Distinguish between the correlation and regression. **(03 Marks)**

b. What is skewness? Calculate the Karl Pearson's coefficient of skewness from the following data and comment on the result. **(07 Marks)**

Age group (years)	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of employees	8	12	20	25	15	12	8

c. From the prices of shares X and Y given below, state which share prices are more stable?

X(Rs)	55	54	53	53	56	68	52	50	51	49
Y(Rs)	107	106	105	105	107	108	104	103	104	101

(10 Marks)

5 a. Define time series. What are its components? **(03 Marks)**

b. What is sampling? Explain the different methods of sampling. **(07 Marks)**

c. Calculate the quartile deviation and its coefficient for the following data: **(10 Marks)**

X	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Y	2	10	18	25	20	10	8	7

6 a. From the following distribution find the range and the coefficient of range. **(03 Marks)**

X	6	12	18	24	32	38	46
Y	20	150	100	80	180	1500	700

b. What do you mean by tabulation of data? Explain the various parts of a table. **(07 Marks)**

c. If the average wages paid to 30 workers in Rs.85, find the missing frequencies. **(10 Marks)**

Wages (Rs.)	50	60	70	80	90	100	110	120
No. of workers	2	4	-	-	7	3	5	1

7 a. What is index number? State its uses. **(03 Marks)**

b. Define probability. A survey conducted by a bath soap manufacturer of brand 'T' indicates that when men go for shopping, they are likely to buy T, 3 out of 4 times and women when they go for shopping, they are likely to buy brand T, 2 out of 3 times. Find the probability of brand T being bought when men and women shop together, **(07 Marks)**

c. With the help of the following data, calculate the trend values by the method of lest squares and estimate the sales for the year 2011. **(10 Marks)**

Years	2000	2001	2002	2003	2004	2005	2006
Sales (in lakhs)	25	27	32	36	44	55	69

8 a. Define t-test and F-test. **(03 Marks)**

b. What is ANOVA? State the underlying assumptions. **(07 Marks)**

c. A simple random sample of size is 49, is drawn from a finite population consisting of 110 units. If the population std. deviation is 14.7, find the standard error of sample mean when the sample is drawn i) with replacement and ii) without replacement. **(10 Marks)**

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