Subject: Statistics for Business Decisions   Course Code: MGMT 515

Full Marks: 60   Time: 3:00 Hours

You are required to answer in your own words as far as applicable. Figures in the margins indicate full marks.

SECTION A: CRITICAL THINKING QUESTIONS (10 X1 = 10 MARKS)

Answer all questions.

Q1.   Define primary data and secondary data.

Q2.   What is percentage bar diagram?

Q3.   The value of mode and median for a moderately skewed distribution are 64.2 and 68.6 respectively. Find the value of mean.

Q4.   The difference between the upper quartile and lower quartile of a certain frequency distribution is 8 and their sum is 132. Calculate the quartile deviation and its coefficient.

Q5.   The SD of a symmetrical distribution is 3. What must be the value of fourth moment about mean in order that the distribution be normal?

Q6.   The following results were obtained: CV = 5%, Karl Pearson's coefficient of skewness=0.5, standard deviation =2, Find the value of mode.

Q7.   If the correlation coefficient between X and Y is 0.7, the probable error of r is 0.0344, what will be the value of n?

Q8.   From the information of prices and quantities of four commodities in the base year 1983 and the current year 1984, the following results are obtained :

$\sum p_0 q_1 = 571, \sum p_1 q_0 = 1380, \ \sum p_1 q_1 = 1500, \ \sum p_0 q_0 = 510$

Where p_0, p_1, q_0 & q_1 have their usual meaning. Calculate the price index by Fisher's formula.

Q9.   While fitting a straight line trend of the type y = a + bx, what is signified y, x, a and b?

Q10.   Define mutually exhaustive case.

SECTION B: SHORT ANSWER QUESTIONS (3 X 8 = 24 MARKS)

Answer any THREE questions:

Q11.   From the following data find out the missing frequencies and compute the standard deviation of the distribution if the average number of tablets to cure was 20.96   8

No. of tablets	4-8	8-12	12-16	16-20	20-24	24-28	28-32	32-36	36-40	total
No. of person cured	10	12	14	16	?	16	?	10	5	115

Q12.   Solve graphically: 8

Minimize: Z = 3x + 2y

Subject to the constraints: 2x - y≤ 1, x+2y≤ 3 and x,y ≥ 0

Q13.   Fit a straight line trend and find the trend values for the following data and predict the likely profit for 1987.   8

Year	1980	1981	1982	1983	1984	1985	1986
Profit(Rs.000)	80	90	92	83	94	99	92

Q14.   Define mutually exhaustive events. An unbiased coin is tossed 6 times. Find the probability of getting: 2+6

(i)   Exactly 4 heads

(ii) At least 2 heads

(iii) At most 3 heads

(iv) Less than 3 heads

Answer any TWO questions:

Q15. Why Fishers index number is also called Fishers Ideal index number? Using the following data, construct Fisher's ideal index, and show that it satisfies factor reversal test and time reversal test. 1+2+10

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

Q16. From the given bivariate frequency distribution, find out if there exists any relationship between the age of wives and husbands and test for the significance of the result and interpret the result. Also determine the age of the wife whose husband's age is 75 years. 13

Ages of wives in years	Ages of husbands in years				
	20-30	30-40	40-50	50-60	60-70
15-25	5	9	3	-	-
25-35	-	10	25	2	-
35-45	-	1	12	2	-
45-55	-	-	4	16	5
55-65	-	-	-	4	2

Q17. A company claims that the mean life time of its electric light bulb is 28 months. A random sample of 10 bulbs has the following life in months: 24, 26, 32, 28, 20, 20, 23, 34, 30 and 43. Test the claim of the company at 5% level of significance. [t0.05(9)= 2.262] 13

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