First Semester MBA Degree Examination, June 2012
Statistics for Management

Time: 3 hrs.   Max. Marks:100

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

1 a. Explain the importance of statistics with respect to business. **(03 Marks)**
   b. Distinguish between primary and secondary data. Discuss the methods of collecting primary data. **(07 Marks)**
   c. Convert the following distribution into "more than" frequency distribution :

Weekly wages less than ('00 Rs.)	20	40	60	80	100
Number of workers	41	92	156	194	201

For the data given above, draw "less than" and "more than" ogives and hence find the value of median. **(10 Marks)**

2 a. State the different types of averages and reason out why the arithmetic mean is the most commonly used amongst them. **(03 Marks)**
   b. Draw a pie diagram to represent the distribution of a certain blood group '0' among gypsies, Indians and Hungarians. **(07 Marks)**

	Frequency		
Blood group	Gypsies	Indians	Hungarians
'0'	343	313	344

   c. A certain number of salesmen were appointed in different territories and the following data were compiled from their sales reports :

Sales ('000 Rs.)	4-8	8-12	12-16	16-20	20-24	24-28	28-32	32-36	36-40
Number of salesman	11	13	16	14	-	9	17	6	4

If the average sales is believed to be Rs.19,920, find the missing information. **(10 Marks)**

3 a. List the various methods of measuring variation. Which of these do you consider as the best and why? **(03 Marks)**
   b. The wholesale prices of a commodity for seven consecutive days in a month are as follows :

Days	1	2	3	4	5	6	7
Price/quintal	240	260	270	245	255	286	264

Calculate the variance and standard deviation. **(07 Marks)**
   c. For a moderately skewed distribution, the arithmetic mean is 100 and coefficient of variation is 35 and Pearson's coefficient of skew ness is 0.2. Find the mode and the median. **(10 Marks)**

4 a. Explain the terms-skewness and Kurtosis. **(03 Marks)**
   b. Distinguish between correlation and regression analysis and indicate the utility of regression analysis in economic activities. **(07 Marks)**
   c. The following data give the ages and blood pressure of 10 men :

Age	56	42	36	47	49	42	60	72	63	55
Blood pressure	147	125	118	128	145	140	155	160	149	150

    i) Find the correlation coefficient between age and blood pressure.
    ii) Determine the least squares regression equation of blood pressure on age.
    iii) Estimate the blood pressure of a man whose age is 45 years. **(10 Marks)**

5 a. What do you mean by time series analysis? List its components. **(03 Marks)**

b. Write a short note on utility of index numbers. **(07 Marks)**

c. For the following data, calculate the price index number of year 2 with year 1 as the base year using i) Laspeyre's method and ii) Paasche's method.

Commodity	Year 1		Year 2	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

Comment on the results. **(10 Marks)**

6 a. What are mutually exclusive events and independent events? **(03 Marks)**

b. An urn contains 8 white and 3 red balls. If 2 balls are drawn at random, find the probability that
   i)   Both are white
   ii) Both are red
   iii) One is of each color. **(07 Marks)**

c. The intelligence quotient of army volunteers in a given year are normally distributed with mean (μ) = 110 and standard deviation (σ) = 10. The army wants to give advanced training to 20% of those recruits with the highest scores. What is the lowest IQ score acceptable for advanced training? **(10 Marks)**

7 a. What is a sample survey? In what respects is it superior to a census survey? **(03 Marks)**

b. Discuss briefly the different stages involved in hypothesis testing. **(07 Marks)**

c. Out of a sample of 120 persons in a village, 76 persons were administered a new drug for preventing influenza and out of them, 24 persons were attacked by influenza. Out of those, who were not administered the new drug, 12 persons were not affected by influenza.
   Prepare i) 2 × 2 table ; ii) use chi-square test for finding out whether the new drug is effective or not. **(10 Marks)**

8 a. List the difference between type I and type II errors. **(03 Marks)**

b. The HRD manager wishes to see if there has been any change in the aptitude of trainees after a specific training programme. Scores are given below. Find : has any change taken place at 5% level of significance level. **(07 Marks)**

Trainee	A	B	C	D	E	F	G	H	I
Score before training	75	70	46	68	68	43	55	68	77
Score after training	70	77	57	60	79	64	55	77	76

c. How is analysis of variance technique helpful in solving business problems? Illustrate your answer with suitable examples. **(10 Marks)**

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