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10MBA13

First Semester MBA Degree Examination, December 2012
Statistics for Management

Time: 3 hrs. Max. Marks:100

Note: *1. Answer any FIVE full questions.*
2. Use of statistical tables is permitted.
3. Graph sheet will be provided.

1 a. What is statistics? **(03 Marks)**

b. Discuss the importance of statistics in business and management. **(07 Marks)**

c. Report the following data by the angular pie-diagram: **(10 Marks)**

Budget for the 9th Five year plan (In crore of rupees)

Subject	Central Govt.	State Govt.
Agriculture	190	130
Irrigation	270	210
Transport	410	60
Industries	150	20
Education	190	190
Miscellaneous	40	10
Total	1250	620

2 a. What are the different types of mathematical averages? **(03 Marks)**

b. Discuss the different types of theoretical distribution. **(07 Marks)**

c. For the following draw less? more than ogive and also find median. **(10 Marks)**

Weekly wages in Rs.	20-40	40-60	60-80	80-100	100-120	120-140	140-160	160-180	180-200
No. of workers	8	12	20	30	40	35	18	7	5

3 a. The average percentage of marks secured by the students of final B.Com. class of 120 students is 60. If the average % of marks of the Honours students be 65 and that of the Pass students be 50, find the number of Honours and pass students separately. **(05 Marks)**

b. Find the missing frequency of the series if the arithmetic average is 39.5 and the total number of items is 100. **(07 Marks)**

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	10	?	4	20	3	?

c. The following table gives the figures of profit of the two companies X and Y for the last 5 years. Which of the two companies has greater consistency in earning? **(08 Marks)**

Year	Company X (Rs.)	Company Y (Rs.)
2003	700	800
2004	600	700
2005	750	750
2006	650	900
2007	800	850

4 a. What is skewness? **(03 Marks)**

b. Discuss the different types of correlation. **(07 Marks)**

c. What do you mean by primary and secondary data? Also, mention the methods of collecting primary data. **(10 Marks)**

5 a. From the following facts determine Bowley's coefficient of skewness :
$Q_3 - Q_1 = 9$, $Q_3 + Q_1 = 25$, $M = 12$. **(03 Marks)**

b. From the following observations find the extent of correlation between the age and crime by using the product moment formula of Karl Pearson. **(07 Marks)**

Age	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of person in lakhs	80	60	50	40	30	25	20	15	10	5
No. of crimes	50	45	80	35	30	20	15	11	8	3

c. From the data given below find
i) Two regression equation ii) standard deviation of X and Y iii) Figure of sales when the expenditure on advertisement is Rs.15000. **(10 Marks)**

Expenditure on advertisement (in '000 Rs.) (X)	11	7	9	5	8	6	10
Volume of sales (in lakhs Rs.) (Y)	10	8	6	5	9	7	11

6 a. Production figures of a textile industry are as follows:

Year	2001	2002	2003	2004	2005	2006	2007
Production (in '000 units)	12	10	14	11	13	15	16

Find : i) The trend values? Show the trend line on a graph paper.
ii) Estimate the production for 2008 & 2010. **(08 Marks)**

b. In an umbrella factory, where the umbrellas are bundled in tens, there is a little chance (1/50) of an umbrella being defective. Find the appropriate number of packets containing not more than 2 defective umbrellas in a consignment of 10,000 bundles. **(07 Marks)**

c. A sample of 30 girls married early gives an average life of 55 years with a standard deviation of 10 years. From this can we include at 5% significance level that the early married women live upto 60 years on an average. **(05 Marks)**

7 a. Define mutual inclusive & mutual exclusive events. **(03 Marks)**

b. The monthly income of 1000 employees are normally distributed across a mean of Rs.2500 with a standard deviation of Rs.250. Find the number of employees whose monthly income would be i) between Rs. 2000 & Rs. 3000 ii) less than Rs. 2000 **(07 Marks)**

c. In a survey of Polio epidemic in Orissa it was found that 1000 children contracted Polio disease. 400 children were given vaccine among whom 150 became handicapped. Of these, who were not given the vaccine, 130 become handicapped. Using the Chi-square technique, test the effect of the vaccine in checking the Polio disease at the 5% level of significance. **(10 Marks)**

8 a. What is formula of standard error, when we test the difference between two proportions? **(03 Marks)**

b. From the data given below compute Fisher's ideal index for the year 2008 with 2005 as the base year: **(07 Marks)**

Commodity	2005		2008	
	Price	Quantity	Price	Quantity
P	20	8	40	6
Q	50	10	60	5
R	40	15	50	15
S	10	20	20	25

c. From the following sample data construct a table for analysis of variances to study the effects of the three detergents, and the three different water temperatures at 5% level of significance given that the critical value of F is 6.95 for $\gamma_1 = 2$, $\gamma_2 = 2$ and $\gamma_3 = 4$.

Detergent	Water temperature		
	Cold	Warm	Hot
P	7	6	4
Q	6	4	3
R	3	5	3

(10 Marks)

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