



THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions. (10x3=30)

- i. Level of Significance
- ii. Hypothesis testing using Confidence Interval
- iii. Assumptions under Analysis of Variance
- iv. Correlation and Correlation Coefficient
- v. Coefficient of Determination
- vi. Chi-square test for multinomial distribution
- vii. Type-I and Type-II Errors
- viii. Bootstrapping
- ix. Multicollinearity
- x. Contingency Table

Answer the following Questions. (5x6=30)

Q2. Is your favorite TV program often interrupted by advertising? CNBC presented statistics on the average number of programming minutes in a half-hour sitcom (CNBC, February 23, 2006). The following data (in minutes) are representative of their findings.

21.06	21.66	23.82	21.52	20.02	22.37	23.36	22.24	21.23	20.30
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Test the hypothesis that the mean number of programming minutes during a half-hour television Sitcom is 21.0 minutes using the 95% confidence interval.

Q3. According to Thomson Financial, through January 25, 2006, the majority of companies reporting profits had beaten estimates (*BusinessWeek*, February 6, 2006). A sample of 162 companies showed 104 beat estimates, 29 matched estimates, and 29 fell short. Test the hypothesis that the proportion for beaten estimates differ from 50% using a 95% confidence interval.

Q4. The data in the following table show the number of shares selling (millions) and the expected price (average of projected low price and projected high price) for 10 selected initial public stock offerings.

Shares Selling (millions)	5.0	9.0	6.7	8.75	3.0	13.6	4.6	6.7	3.0	7.7
Expected Price (\$)	15	14	15	17	11	19	13	14	10	13

- i. Develop a scatter diagram for these data with Shares Selling as the independent variable.
- ii. Predict the Expected Price for the 10.0 million shares selling using the estimated least square regression equation.
- iii. Find the Pearson's correlation coefficient between the Expected Price (\$) and the shares selling.

Q5. Is the type of beverage ordered with lunch at a restaurant independent of the age of the consumer? A random poll of 55 lunch customers is taken, resulting in the following contingency table of observed values. Use $\alpha = .01$ to determine whether the two variables are independent. Also compute Contingency coefficient and interpret the result.

		Preferred Beverage		
		Coffee/Tea	Soft Drink.	Other (Milk etc.)
Age	1 - 34	8	14	9
	35 - 55	5	4	2
	> 55	6	4	3

Q6. The following data gives the sales record of three sales-team in an organization:

Team-A	Team-B	Team-C
71	39	73
34	46	81
39	52	58
54	66	66
66	73	74

Test the hypothesis that there are no significant differences in the sales among the three sales teams using the ANOVA table.