

QUANTITATIVE TECHNIQUES FOR MANAGERS

BBA-C-17

BBA 5th Semester Examination 2017

Time: 3 hr.

MM: 75

Attempt any Six Questions from Section-A and Three Questions from Section-B.

Section - A

(6x5 = 30)

- Q1. Determine the mean, the variance and the standard deviation of the following discrete distribution.

X	1	2	3	4	5
P(X)	.238	.290	.177	.158	.137

- Q2. If $n = 4$ and $p = .10$, find $P(X = 3)$ and solve for the mean and standard deviation of the given binomial distribution.
- Q3. Explain Central Limit Theorem.
- Q4. Three unbiased coins are tossed together. Find the probability of getting:
i) all heads ii) two heads iii) one head iv) at least two heads
- Q5. List and explain the characteristics of the normal distribution.
- Q6. What is the probability of obtaining a score greater than 700 on a GMAT test that has a mean of 494 and a standard deviation of 100? Assume GMAT scores are normally distributed.
- Q7. A population has a mean of 50 and standard deviation of 10. If a random sample of 64 is taken, what is the probability that the sample mean is less than 51?
- Q8. What is meant by 'correlation'? Distinguish between positive, negative and zero correlation.
- Q9. Explain the concept of regression and coefficient of determination.

Section – B

(15x3 = 45)

Q10. What do you understand by probability of occurrence of an event? Explain different methods of assigning probability to the occurrence of an event.

Q11. i) Use the following information to construct the confidence intervals specified to estimate population mean μ .

95% confidence interval for $\bar{X} = 25$, $\sigma = 3.5$ and $n = 60$

ii) Use the following information to construct the confidence intervals specified to estimate population variance σ^2 .

$n = 12$, $\bar{X} = 28.4$, $s^2 = 44.9$; 99% confidence for σ^2 .

Q12. Use the data given to test the following hypotheses.

i) $H_0: \mu = 25$ $H_a: \mu \neq 25$

$\bar{X} = 28.1$, $n = 57$, $s = 8.46$, $\alpha = .01$

ii) $H_0: \mu = 7.48$ $H_a: \mu < 7.48$

$\bar{X} = 6.91$, $n = 96$, $s = 1.21$, $\alpha = .01$

Q13. Determine the value of the coefficient of correlation, r , for the following data.

X	4	6	7	11	14	17	21
Y	18	12	13	8	7	7	4

Q14. Investment analyst generally believe the interest rate on bonds is inversely related to the prime interest rate for loans: that is, bonds perform well when lending rates are down and perform poorly when interest rates are up. Can the bond rate be predicted by the interest rate? Use the following data to construct a least squares regression line to predict bond rates by the prime interest rate.

Bond Rate (%)	5	12	9	15	7
Prime Interest Rate (%)	16	6	8	4	7

Compute coefficient of determination r^2 .

Q15. The following matrix gives the payoff (in Rs) of different strategies (alternatives) S_1 , S_2 , and S_3 against states of nature N_1 , N_2 , N_3 and N_4 .

Strategy	States of Nature			
	N_1	N_2	N_3	N_4
S_1	4,000	-100	6,000	18,000
S_2	20,000	5,000	400	0
S_3	20,000	15,000	-2000	1,000

Indicate the decision taken under the following approaches:

- i) Pessimistic.
- ii) Optimistic.
- iii) Criterion of Realism with the degree of optimism α being 0.7