



DE-5500
M. B. A. (Sem. I) (Full Time) &
M. B. A. (Sem. III) (Eve.)
(CBCS) / (New Course ATKT) Examination
March / April - 2016
Quantitative Methods

Time : 3 Hours]

[Total Marks : 70/100

Instructions :

(1)

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| <p>नीचे दृष्टावैध निशानीवाणी विगतो उत्तरवद्धी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : M. B. A. (SEM. 1) (FT) & M. B. A. (EVE.) (SEM. 3) ..</p> <p>Name of the Subject : QUANTITATIVE METHODS</p> <p>Subject Code No. : 5 5 0 0 Section No. (1, 2,...): Nil</p> | <p>Seat No. :</p> <table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 25px; height: 20px;"></td><td style="width: 25px; height: 20px;"></td><td style="width: 25px; height: 20px;"></td><td style="width: 25px; height: 20px;"></td><td style="width: 25px; height: 20px;"></td><td style="width: 25px; height: 20px;"></td></tr></table> <p style="text-align: center; margin-top: 20px;">Student's Signature</p> | | | | | | |
| | | | | | | | |

- (2) Question 1 is compulsory. Attempt any four questions from Q. 2,3,4,5,6.
- (3) Assume 5% level of significance whenever required.
- (4) Total Marks for CBCS are 70 and for New Course - ATKT are 100.

1 (a) Define the following terms : 4

- (i) Ratio Scale
- (ii) Perfect Positive Correlation
- (iii) Type II Error
- (iv) Conditional Probability.

(b) Perform a two way ANOVA on the data given below : 10

| Plots of Land | Treatment | | | |
|---------------|-----------|----|----|----|
| | A | B | C | D |
| I | 54 | 49 | 48 | 56 |
| II | 56 | 48 | 52 | 55 |
| III | 52 | 54 | 56 | 52 |

- 2 (a) Find the coefficient of correlation by Karl Pearson's method between X and Y and interpret its value. 7

| | | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| X | 27 | 42 | 40 | 33 | 42 | 25 | 32 | 34 | 40 | 26 | 24 | 13 |
| Y | 20 | 40 | 30 | 11 | 39 | 17 | 47 | 39 | 48 | 29 | 21 | 29 |

- (b) Are the types of professional jobs held in the computing industry independent of the number of years a person has worked in the industry ? Suppose 246 workers are interviewed. Use the results obtained to determine whether type of professional job held in the computer industry is independent of years worked in the industry. 7

| | | <i>Professional Position</i> | | | |
|-------|-------------|------------------------------|-------------------|-----------------|-----------------------|
| | | <i>Manager</i> | <i>Programmer</i> | <i>Operator</i> | <i>System Analyst</i> |
| Years | 0-3 | 6 | 37 | 11 | 13 |
| | 4-8 | 28 | 16 | 23 | 24 |
| | More than 8 | 47 | 10 | 12 | 19 |

- 3 From the data given below find the two regression equations. 14

| Y | X | | | |
|-------|-------|-------|-------|-------|
| | 20-25 | 25-30 | 30-35 | 35-40 |
| 16-20 | 4 | 9 | - | 23 |
| 20-24 | 1 | 4 | 1 | 16 |
| 24-28 | 4 | 4 | 3 | 21 |
| 28-32 | 9 | 17 | 4 | 10 |

- 4 For the following frequency table calculate mean, median, mode, Lower Quartile, 4th Decile, 86th Percentile and Variance of the data. 14

| Weekly Rent (In Rs.) | No. of Persons paying the rent | Weekly Rent (in Rs.) | No. of persons paying the Rent |
|----------------------|--------------------------------|----------------------|--------------------------------|
| 200-400 | 6 | 1200-1400 | 15 |
| 400-600 | 9 | 1400-1600 | 10 |
| 600-800 | 11 | 1600-1800 | 8 |
| 800-1000 | 14 | 1800-2000 | 7 |
| 1000-1200 | 20 | | |

- 5 (a) A nationwide retailer wants to test whether new product shelf facings are effective in increasing sales volume. New shelf facings for the soft drink Pepsi are tested at a random sample of 15 stores throughout the country. Data on total sales of Pepsi for each store, for the week before and the week after the new facings are installed, are given below : 7

| Store | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Before | 37 | 31 | 12 | 28 | 22 | 69 | 51 | 29 | 28 | 93 | 22 | 26 | 24 | 40 | 42 |
| After | 60 | 34 | 20 | 35 | 31 | 70 | 41 | 45 | 49 | 80 | 30 | 32 | 19 | 77 | 29 |

Using the 0.05 level of significance, do you believe that the new shelf facings increase sales of Pepsi ?

- (b) The incidence of occupational disease in an industry in such that the workers have a 14% chance of suffering from it. What is the probability that out of Eight workers 6 or more will contract disease ? 7
- 6 Write any two short notes : 14
- (i) Properties of t Distribution
 - (ii) Applications of Statistics
 - (iii) Advantages and Disadvantages of arithmetic mean.
