|  |  |  |  |  |  |  |  |  |
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D.K.M.COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1

**SEMESTER EXAMINATIONS**

**APRIL - 2016 CACO4B**

**ALLIED: BUSINESS STATISTICS AND OPERATIONS RESEARCH-II**

Time : 3 Hrs Max.Marks : 75

SECTION-A (10 x 2 =20)

**Answer ALL the questions.**

1. Define Correlation.
2. Give Formula for Regression Equation.
3. Define Index Number.
4. Give Formula for Time and Factor Reversal Test.
5. Define Time series.
6. Define Interpolation.
7. Define probability.
8. In a single throw of a die, what is the probability of getting an

odd number?

1. What is meant by Transportation?
2. What is meant by Assignment?

SECTION-B (5 x 5 =25)

**Answer any FIVE of the following questions.**

1. Calculate the rank correlation.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| X | 2 | 1 | 5 | 3 | 4 | 7 | 6 |
| Y | 1 | 3 | 2 | 4 | 7 | 5 | 6 |

1. Calculate the regression equations.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 6 | 2 | 10 | 4 | 8 |
| Y | 9 | 11 | 5 | 8 | 7 |

1. Compute
   1. Laspeyre’s index numbers.
   2. Paashe’s index numbers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item |  |  |  |  |
| A | 6 | 10 | 50 | 50 |
| B | 2 | 2 | 100 | 120 |
| C | 4 | 6 | 60 | 60 |
| D | 10 | 12 | 30 | 25 |

1. Calculate 3 yearly moving averages.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 1968 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 |
| Production | 21 | 22 | 23 | 25 | 24 | 22 | 25 | 26 | 27 | 26 |

1. From a pack, 2 cards are drawn at random. Find the probability

that one is king and other a Queen.

1. What is interpolation? What are the different methods of

calculating Interpolation?

1. Calculation of Transportation Problem under North West corner rule.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Warehouse | S1 | S2 | S3 | Avi |
| W1 | 5 | 4 | 3 | 6 |
| W2 | 4 | 7 | 6 | 8 |
| W3 | 2 | 5 | 8 | 12 |
| W4 | 8 | 6 | 7 | 4 |
| Requirement | 8 | 10 | 12 | 30 |

1. Solve Assignment Problem.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Job | r1 | r2 | r3 | r4 |
| C1 | 7 | 6 | 8 | 4 |
| C2 | 8 | 9 | 2 | 5 |
| C3 | 11 | 1 | 6 | 7 |
| C4 | 5 | 4 | 9 | 6 |

SECTION-C (3 x 10 =30)

**Answer ALL the questions.**

1. (a) Calculate Correlation coefficient.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Height | 60 | 63 | 65 | 64 | 68 |
| Weight | 50 | 53 | 60 | 67 | 70 |

(Or)

(b) Calculate Regression and coefficient of correlation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 4 | 5 | 6 | 8 | 11 |
| Y | 12 | 10 | 8 | 7 | 5 |

1. (a) Calculate Fisher’s Ideal Index from the following data and

prove that it satisfies both the time reversal and factor

reversal tests.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Commodities | 2002 | | 2003 | |
| Price | Qty | Price | Qty |
| A | 8 | 16 | 10 | 16 |
| B | 10 | 20 | 12 | 24 |
| C | 6 | 12 | 8 | 14 |
| D | 16 | 10 | 20 | 8 |

(Or)

(b) Fit a straight line trend for the following data by the method

of least squares.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | 1997 | 1998 | 1999 | 2000 | 2001 |
| Sales (Rs.) | 70 | 74 | 80 | 86 | 90 |

1. (a) Solve Transportation under least cost method.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | A | B | C | Ai |
| X | 16 | 19 | 12 | 14 |
| Y | 22 | 13 | 19 | 16 |
| Z | 14 | 28 | 8 | 12 |
| Rj | 10 | 15 | 17 | 42 |

(Or)

(b) Solve assignment problem.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Job | 1 | 2 | 3 | 4 |
| A | 9 | 26 | 17 | 11 |
| B | 13 | 28 | 4 | 26 |
| C | 38 | 19 | 18 | 15 |
| D | 19 | 26 | 24 | 10 |

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