ST. ALOYSIUS COLLEGE, EDATHUA

BCOM IV SEMESTER

MODEL EXAMNATION, MARCH 2019

**QUANTITATIVE TECHNIQUES FOR BUSINESS – II**

TIME : 3 HRS. MAX. MARKS :80

**PART – A**

**Answer any Ten Questions**

**Each Question carries 2 marks**

1. What is weighted index numbers?
2. What is rank correlation?
3. What is meant by link relatives?
4. What do you mean by Splicing?
5. What is imperfect correlation?
6. What is meant by multiple regression?
7. What is consumer price index?
8. What is secular trend?
9. What is linear regression?
10. Define Probability
11. What do you mean by Permutation?
12. What is mutually exclusive event?

**PART – B**

**Answer any Six Questions**

**Each Question carries 5 marks**

1. State Addition Theorem with examples
2. Distinguish between Chain base index number and Fixed base index number
3. What do you mean by cost of living index number? Explain its uses.
4. What do you mean by Time Series analysis? Explain its uses
5. A bag contains 8 white and 4 black balls. Five balls are drawn at random. What is the probability that 2 of them are black and 3 white.
6. In how many ways the letters of the word CONSTITUTION be arranged?
7. A card is drawn from a well shuffled pack of 52 cards. What is the probability that it is either a Spade or an Ace?
8. From the following data, compute Fisher’s Ideal index and show whether it satisfies both Time Reversal Test and Factor Reversal Test.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Commodity | 2017 | | 2018 | |
| Price per unit | Total value | Price per unit | Total value |
| A  B  C  D | 2  4  1  5 | 40  16  10  25 | 5  8  2  10 | 75  40  24  60 |

1. From the following table find the correlation coefficient between age and playing habbit of students;

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Age(years) | 15 | 16 | 17 | 18 | 19 | 20 |
| No. of Students | 250 | 200 | 150 | 120 | 100 | 80 |
| Regular players | 200 | 150 | 90 | 48 | 30 | 12 |

1. Calculate Spearman’s Rank Correlation Coefficient from the following :

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 85 | 45 | 55 | 58 | 55 | 60 | 45 | 68 | 70 | 45 | 91 |
| Y | 86 | 56 | 50 | 43 | 56 | 62 | 64 | 65 | 70 | 64 | 94 |

**PART – C**

**Answer any Two Questions**

**Each Question carries 15 marks**

1. Define Index number. Explain the problems in the construction of Index Numbers.
2. Below are given the annual production of Tea in a factory;

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Production  (in tones) | 70 | 75 | 90 | 91 | 95 | 98 | 100 |

1. Fit a straight line trend by the method of least squares and tabulate the trend values
2. Estimate the production for the year 2018
3. Eliminate the trend by using additive model
4. What is the monthly increase in production?
5. Convert your annually trend equation into a monthly trend equation.
6. Determine Regression equation of X on Y and Y on X from the following;

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age | 56 | 42 | 36 | 47 | 49 | 42 | 60 | 72 | 63 | 55 |
| B.P. | 147 | 125 | 118 | 128 | 145 | 140 | 155 | 160 | 149 | 150 |

1. Determine the B.P. of a person whose age is 45
2. Determine the age when B.P. is 170
3. Calculate correlation coefficient between and B.P.
4. Ina bolt factory, Machine M1, M2 and M3 manufacture respectively 25, 35 and 40 percent of the total. Out of their output 5, 4 and 2 percent respectively are defective bolts. One bolt is drawn at random from the product and it is found defective. What is the probability that it was manufactured in Machine M1.