Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF COMMERCE

B.Com (Hons) 2019 – 20 Examination

Semester: 3 **Date:26/11/2019**
Subject Code: 16100204 **Time:10:30am to 01:00pm**
Subject Name: Business-Statistics-II **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as directed.

A) Choose the most appropriate option as an answer. (Each of one mark) **(06)**

1. If both variables X and Y increase or decrease simultaneously, then the coefficient of correlation will be:
   a) Positive b) Negative
   c) zero d) one
2. When using the chi-square test for differences in two proportions with a contingency table that has r rows and c columns, the degree of freedom for the test statistics will be.
   a) (r-1)(c-1) b) (r-1) + (c-1)
   c) n-1 d) none of these.
3. Testing Ho: μ = 25 against H1: μ ≠ 20 leads to
   a) One tailed b) Two tailed
   c) Left tailed d) Right tailed
4. Index numbers can be used for
   a) Different prices b) Constant prices
   c) Forecasting d) Fixed prices
5. An orderly set of data arranged in accordance with their time of occurrence is called
   a) Seasonality b) Secular trend
   c) Cyclical variations d) Time series.
6. Which of the following tests is not based on rank?
   a) Sign Test b) Wilcoxon sign rank test
   c) Mann whitney test d) Kruskal wallis Test

B) Answer the following. (Each of one mark) **(06)**

1. If Ho is true and we reject it , which error is _____
2. The fire in a factory is an example of which component of time series.
3. If $b_{yx} = 1.6$ and $b_{xy} = 0.4$, then r_{xy} will be:
4. Write the types of correlation.
5. If coefficient of correlation is more than 6 times of probable error (r > 6 P.E), it is significant [True/False]
6. Write the types of Index Numbers.

Q.2 Answer the following.. (Each of 04 mark) **(12)**

1. In a big city 480 men out of a sample of 800 men are smokers. Does this information support the hypothesis that the majority of men in the city are smokers?
2. Obtain regression line of y on x.

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

3. The mean of a sample size 400 is 82 and s.d is 18. Find 95% confidence limits for population mean.

Q.3 Answer the following. (Any Three) **(18)**

1. Dissolution is compared for three experimental batches with the following results

Batch-1	15	18	19	21	23	26
Batch-2	17	18	24	20		
Batch-3	13	10	16	11	9	

   Is there a significant difference among the batches? Use Krushkal wallis Test
2. Find the Pearson's Correlation Coefficient of the following data:

x	23	27	28	29	30	31	33	35	36	39
y	18	22	23	24	25	26	28	29	30	32

3. Five coins are tossed for 320 times and the following distribution of number of heads is obtained, using chi-square distribution.

Number of heads	0	1	2	3	4	5
Frequency	8	42	116	90	52	12

4. The cost of leaving index numbers of different months are given below. Find trend and short term variation using three monthly moving averages.

Year	Month	Index Number	Year	Month	Index Number
1975	April	265	1976	January	278
	May	271		February	271
	June	250		March	270
	July	241		April	261
	August	245		May	253
	September	239		June	254
	October	253		July	258
	November	268			
	December	270			

Q.4 Answer the following. (Any two) **(18)**

1. Find the Laspeyre's ,Paasche's and Fisher's indx numbers of 2004 taking 2000 as base year from the following data:

Commodity	2000		2004	
	price	Quantity	Price	Quantity
Wheat	50	50	70	60
Rice	5	120	5	140
Pulses	11	30	10	20
Suger	18	20	20	15
Oil	8	5	10	5

2. Fit a second degree parabolic trend to the data given below and obtain trend values.

Year	1950	1955	1960	1965	1970
Profit(thousand)	11	12	14	18	16

3. The following figures relate to the price of commodity in 4 different cities. Test at 5% significance level that there is no significant difference in the prices of the 4 cities.

City	Price				
A	12	16	16		
B	15	14	14	15	
C	17	16	15	14	
D	15	12	15	16	16

Distribution	%	C	ALPHA	One tail test	Two tail test
Z	1%	0.99	0.01	2.33	2.575
Z	5%	0.95	0.05	1.645	1.96
Z	10%	0.90	0.1	1.28	1.645

$\chi^2_{tab} = 5.99\ at\ \alpha = 5\%\ and\ df = 2$
$\chi^2_{tab} = 3.84\ at\ \alpha = 5\%\ and\ df = 1$
$\chi^2_{tab} = 11.07\ at\ \alpha = 5\%\ and\ df = 5$

$F_{tab} = 3.41\ \ at\ \alpha = 5\%\ and\ df = 3{,}12$
$F_{tab} = 8.02\ \ at\ \alpha = 5\%\ and\ df = 3{,}9$
$F_{tab} = 5.14\ \ at\ \alpha = 5\%\ and\ df = 2{,}6$