Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF MANAGEMENT

BBA Supplementary, Winter 2017 - 18 Examination

Semester: 4 **Date: 04/01/2018**
Subject Code: 06191256 **Time: 10.30 am to 1.00 pm**
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).Multiple choice type questions/Fill in the blanks. (Each of 1 mark) **(05)**

1. The degree of freedom to test the independence of two attribute in a $r \times c$ table is

a) $r-1, c-1$ **c)** $c-1, r-1$
b) $1-c, 1-r$ **d)** 1

2. The probability curve of *t* distribution is

a) Asymptotic **c)** symmetrical
b) Normal **d)** none of these

3. Total area under the normal curve is

a) -1 **c)** 1
b) 0 **d)** None of these

4. Parameters of Normal Distribution are

a) μ *and* χ **c)** μ *and* σ
b) μ *and* θ **d)** μ *and* β

5. The total number of samples of size 2 from the population of 6, 9, 11, 10 with replacement is

a) 4 **c)** 2
b) 8 **d)** 16

B).Define the following. **(05)**

1. Degree of freedom
2. Type-I error
3. Chi square Distribution
4. Null hypothesis
5. Stratified random sampling

C).Direct questions. **(05)**

1. What are the components of time series?
2. When does a binomial distribution tend to normal Distribution?
3. What is a Random sample?
4. When is Yate's Correction used?
5. What is analysis of variance?

Q.2 Answer the following questions.

A). **1.** The average life of 150 electric bulbs of a company A is 1400 hours with a S.D. of 120 hours while the average life of 200 electric bulbs of company B is 1200 hours with a S.D. of 80 hours. Is the difference between the average lives of the bulbs significant? **(04)**
($Table\ value = 1.96$)

2. The units produced by a plant are classified into four grades. The past performance of the plant shows that the respective proportion are 8:4:2:1 .To check the run of the plant 600 Parts were examined and classified as follows. Is there any evidence of a change in production standards. ($Table\ value = 7.815$) **(03)**

Grade	First	Second	Third	Fourth	Total
Units	340	130	100	30	600

B). **1.** Explain components of time series. **(04)**

2. A die is thrown for 300 times and the following distribution is obtained. Can the die be regarded unbiased.($Table\,value = 11.07$) **(04)**

Number on the die	1	2	3	4	5	6
Frequency	41	44	49	53	57	56

Q.3 Answer the following questions.

A). **1.** The average height of a group of soldiers is 68.22" and the variance of height is 10.89.Out of 1000 soldiers how many soldiers do you expect to be at least 6 feet tall $![P(0 \le Z \le 1.15 = 0.3749)]$ **(04)**

2. Give the difference between sample study and population study. **(03)**

B). **1.** A random sample of 400 items gave mean 4.45 and variance 4, can the sample be regarded as drawn from a normal population with mean 4?($Table\,value = 1.96$) **(04)**

2. In a hospital sequence of birth of boys**(B)** and girls **(G)** is given below. **GGGGG, BBB, GGGGGG, BBB, GGGGGGGGGG, BBBB, GGGGGGGGGGG, BBB, GGGGGGGGGGG, BBBB.** Test whether the distribution of the births of boys and girls is random at α=0.05 level of significance.($Table\,value = 1.96$) **(04)**

Q.4 Attempt any two questions. **(Each of 7.5 mark)** **(15)**

1. The average marks of 400 students in statistics is 52 and S.D of the marks is 8. If

(i) the standard of passing is of 40 marks, $[P(-1.5 \le Z \le 0 = 0.4332)]$

(ii) the student securing marks between 48 and 60 are given second class, $[P(-0.5 \le Z \le 1 = 0.5328)]$

(iii) at least 66 marks are necessary for getting distinction. $[P(0 \le Z \le 1.75 = 0.4599)]$

Find the number of students failing in the examination, getting second class and getting distinction.

2. For studying characteristics the observations of a population are 10, 12, 20, 22, 26. How many samples of size 2, without replacement can be taken from it? Making a list of all the samples verify the following results:

$(i) E(\bar{y}) = \bar{Y}$

$(ii) V(\bar{y}) = (\frac{N-n}{N}).\frac{S^2}{n}$

$(iii) E(s^2) = S^2$

3. (1) The daily profit of a business man is Rs. 120 and the S.D of the profit is Rs. 15. Find the number of days out of 365 days on which his profit will be less than Rs.100. $[P(-1.33 \le Z \le 0 = 0.4082)]$

(2) Give the difference between Large sample Tests and Small sample Tests.

4. (1) Fit a straight line trend by the method of least square to the following series. Estimate the value for 2012:

Year	2001	2002	2003	2004	2005	2006	2007
Production(m. Tonnes)	60	72	75	65	80	85	95

(2) Give comparison between Parametric and Non-Parametric tests.