Seat No:_____ Enrolment No:_____

PARUL UNIVERSITY

FACULTY OF LAW

I-B.Com. LL.B, Winter 2018 – 19 Examination

Semester: 4 **Date: 18/12/2018**
Subject Code: 16100156 **Time: 10:30am to 1:00pm**
Subject Name: Business Statistics-I **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.1A) Choose the correct answer. **(06)**

1. A circle in which sectors represents various quantities is called_____
a)pi chart b) histogram
c)frequency polygon d) ogive

2. $P(A' \cap B') =$_____
a)$1 - P(A \cup B)$ b)$1 - P(A \cap B)$
c)$P(A \cup B)$ d)$P(A \cap B)$

3. If n = 10 and p = 0.5 for binomial distribution ,then the mean is_____
a) 0.2 b) 5
c)0.25 d)0

4. The median of any given data is 4 and mode is 8 then mean is _____.
a)3 b)2
c)5 d)4

5. Two events A and B are independent then $p(A \cap B) =$_____
a)$p(A) + p(B)$ b)$p(A) + p(B) - p(A)p(B)$
c)$p(A).p(B)$ d)0

6. If $(A) = 0.23$, $P(B) = 0.33$ and $P(A \cap B) = 0.13$ then $P(A \cup B) =$_____.
a)0.77 b)0.90
c)0.43 d)0.56

B) Answer the following. **(06)**

1. For the given observations, what is the median?

20,15,10,25,14,11,12

2. For a Poisson Distribution mean can be 4 and variance can be 2. [True/False]

3. What is the Geometric Mean of 2 and 18?

4. Write the sample space for three coins tossed.

5. Classify the external data depending upon the sources.

6. Graph of the normal distribution is bell shaped. [$True/False$]

Q.2 Answer the following. **(12)**

1. Construct a confidence interval for μ using $t - distribution.$ ($t_{0.99}$ = 3.707)

$$c = 0.99, \bar{x} = 12.4, s = 3, n = 7.$$

2. A bag A contains 2 white and 3 red balls, and a bag B contains 4 white and 5 red balls. One ball is drawn at random from one of the bags and it is found to be red. Find the probability that the red ball is drawn from the bag B.

3. Construct an ogive for the following data.

Interval	10-20	20-30	30-40	40-50	50-60
frequency	5	7	12	10	6

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

1. For a given data X and Y , if $CV_X > CV_Y$ implies the data for X to be more variable, which is more variable according to the following data?

X	7	4	3	5	1
Y	2	10	1	3	6

2. A researcher wishes to estimate, with 99% confidence, the population proportion of adults who are confident with their country's banking system. His estimate must be accurate within 4% of the population proportion.($Z_{0.99}$ = 2.58)

(a) No preliminary estimate is available. Find the minimum sample size needed.

(b) Find the minimum sample size needed, using a prior study that found that 38% of the respondents said they are confident with their country's banking system.

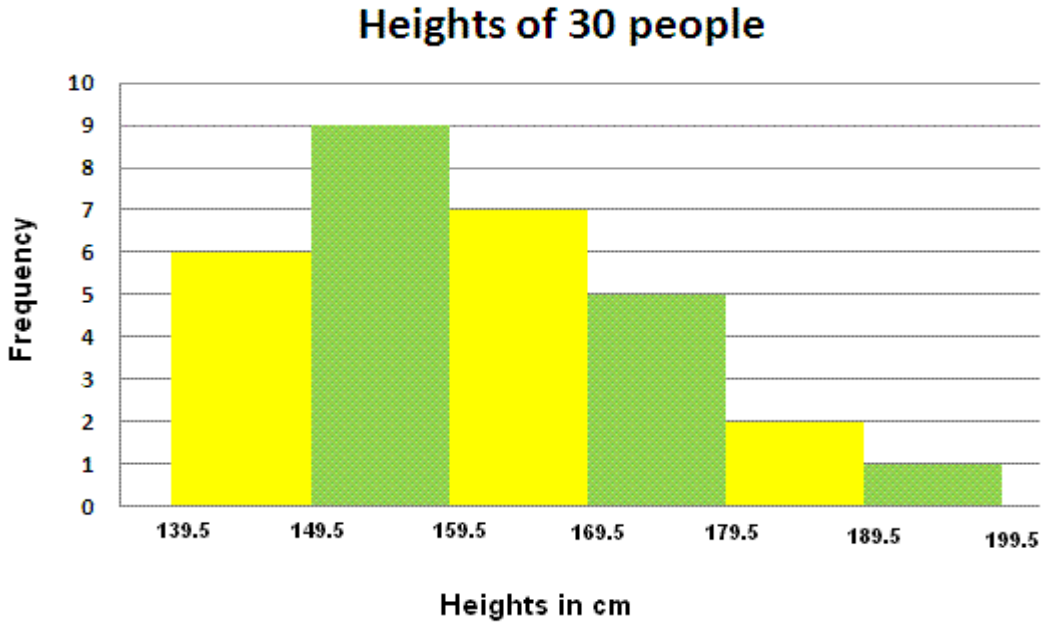
(c) Compare the results from parts (a) and (b).

3. A card is drawn from a well-shuffled pack of 52 cards. Find the probability of

(i) getting a king (ii) getting a face card, (iii) getting a red card.

(iv) getting a card between 2 and 7, both inclusive, (v) a red card or black card, (vi) getting an ace.

4. (a) The histogram below shows the heights (in cm) distribution of 30 people.



a) How many people have heights between 159.5 and 169.5 cm?

b) How many people have heights less than 159.5 cm?

c) How many people have heights more than 169.5 cm?

d) What percentage of people have heights between 149.5 and 179.5 cm?

e) How many people have heights less than 149.5 cm?

f) How many people have heights less than 139.5 cm?

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

1. If A and B are two events such that $P(A) = \frac{2}{3}$, $P(A' \cap B) = \frac{1}{6}$ and $P(A \cap B) = \frac{1}{3}$, then find $P(B), P(AUB), P(A|B), P(B|A), P(A' \cup B)$ and $P(B')$.

Also examine whether events A and B are (i) equally likely, (ii) exhaustive (iii) mutually exclusive .

2. Find the mean, median and mode of the following data:

Class	10-19	20-29	30-39	40-49	50-59
f_i	2	9	15	14	10

3. a) The mean and variance of a binomial distribution are 4 and $\frac{4}{3}$ respectively. Find $P(X \geq 1)$.

b) If the variance of a Poisson variate is 3 find the probability that (i) X = 0 (ii) $0 < X \leq 3$ (iii) $1 \leq X \leq 4$