PARUL UNIVERSITY
FACULTY OF COMMERCE
B.Com. (Hons) Winter 2019 – 20 Examination

Semester: 2   **Date: 14/12/2019**
Subject Code:16100156   **Time: 10:30 am to 1:00 pm**
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.1 Do as directed.

A) Multiple choice type questions.   (Each of one mark)   **(06)**

1. Which of the following is not a method of graphical representation?
   - a) Histogram
   - c) Line Graph
   - b) Pie chart
   - d) Central tendency

2. If $n = 10$ and $p = 0.5$ for binomial distributed random variable X, then the mean is ___
   - a) 5
   - c) 0.5
   - b) 1.5
   - d) 0.02

3. Calculating the difference between the largest and smallest figure produces which figure?
   - a) Mean
   - c) Mode
   - b) Median
   - d) Range

4. By De Morgan's law $P(A \cup B)' = $ _____
   - a) $P(A \cap B)'$
   - c) $P(A' \cap B')$
   - b) $P(A' \cup B')'$
   - d) P(A).P(B)

5. Which of the following is true?
   - a) Sampling error is a type of error occurring in sampling.
   - b) There are no errors in sampling
   - c) Non-sampling error is a type of error occurring in sampling.
   - d) None of these

6. If A and B are two independent sets then $P(A \cap B) = $ _____
   - a) $P(A) \cdot P(B)$
   - b) $P(A) + P(B)$
   - c) $P(A) - P(B)$
   - d) $P(A \cdot B)$

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

1. The mode of the data: 3,2,3,4,3,5,2,5,2,4,5 is _____
2. If the mean for Poisson variable is 2, then find $P(X = 0)=$_____
3. Write the types of Data.
4. Define level of confidence.
5. If Mean > Median > Mode then distribution is_____Skewed.
6. Three coins tossed simultaneously. Write the sample space.

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

1. Construct a confidence interval for μ using $t - distribution.$ ($t_{cal = 3.707}$)
   Given $c = 0.99, \bar{x} = 12.4, s = 3, n = 7$.

2. Construct an ogive for the following data.

Interval	10 − 20	20 − 30	30 − 40	40 − 50	50 − 60
Frequency	5	7	12	10	6

3. Find the variance and the standard deviation from the following table:

| Class	0 − 10	10 − 20	20 − 30	30 − 40	40 − 50	50 − 60	60 − 70
Frequency	6	14	10	8	1	3	8

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

   1. A card is drawn from a pack of well-shuffled cards. Find the probability of following events:

   a] The card drawn is a spade.   b] The card drawn is a king.

   c] The card drawn is a face card.   d] The card drawn is not a club.

   e] The card drawn is either a heart or a diamond.

   2. Find the mean deviation from median of the following:

Income	$0-10$	$10-20$	$20-30$	$30-40$	$40-50$
No. of workers	10	25	30	20	15

   3. The pie graph represents distribution of the expenditure of income(Rs. 50000)of a
       Person:
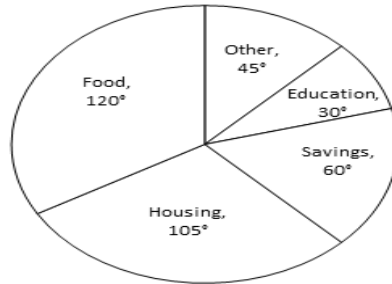
      (a) How much income is invested in food and housing?

      (b) How much income is invested in saving and education?

   4. An unbiased coin is tossed 6 times. Find the probability of getting

     (i) exactly 4 heads   (ii) at least 4 heads.

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

   1. 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

   2. A company has 2 plants to manufacture hydraulic machines. Plant I manufactures 70% of the hydraulic machines, and plant II manufactures 30%. At plant I, 80% of hydraulic machines are rated standard quality; and at plant II, 90% of hydraulic machines are rated as standard quality. A machine is picked at random and is found to be of standard quality. What is the chance that it has come from plant I? What is the chance that it has come from plant II ?

   3. The table to the right shows the results of a survey in which 2573 adults from Country A, 1129 adults from Country B, and 1082 adults from Country C were asked if human activity contributes to global warming. Complete parts (a), (b), and (c).

adults who says that human activity contributes	
Country	Percentage
Country A	62%
Country B	90%
Country C	95%

    (a) Construct a 99% confidence interval for the proportion of adults from Country A who say human activity contributes to global warming.

    (b) Construct a 99% confidence interval for the proportion of adults from Country B who say human activity contributes to global warming.

    (c) Construct a 99% confidence interval for the proportion of adults from Country C who say human activity contributes to global warming.

     $(Z_c = 2.58)$