

Table III

	Republic	Democrat	Independent	RowTotal
Male	200	150	50	400
Female	250	300	50	600
Column Total	450	450	100	1000

$$(2 + 2) + 8 = 12$$

Group - E

8. What do you understand by the term plagiarism? What do you understand by the term "self plagiarism"? Can you suggest some practices to avoid plagiarism?

$$(5 + 4 + 3) = 12$$

9. Write short notes on the following:

- (i) Patent
(ii) IPR.

$$6 + 6 = 12$$

**RESEARCH METHODOLOGY AND IPR
(CSEN 5102)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

Candidates are required to give answer in their own words as far as practicable.

**Group - A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**

- (i) $\sum (x_i - A)$ becomes zero when
 (a) A is mean (b) A is median
 (c) A is mode (d) A is variance.
- (ii) Which of the following is non-probability sampling?
 (a) Random (b) Stratified
 (c) Quota (d) Cluster.
- (iii) An Interview in which interviewer encourage the respondent to talk freely about a given topic is
 (a) Focused Interview (b) Structural Interview
 (c) Un Structured Interview (d) Clinical Interview.
- (iv) The level of significance is the
 (a) maximum allowable probability of Type II error
 (b) maximum allowable probability of Type I error
 (c) same as the confidence coefficient
 (d) same as the p-value.
- (v) Median and _____ are equivalent.
 (a) First Quartile (b) 50th Percentile
 (c) Third Quartile (d) 25th Percentile
- (vi) In hypothesis testing, the hypothesis tentatively assumed to be true is
 (a) the alternative hypothesis
 (b) the null hypothesis
 (c) either the null or the alternative
 (d) none of these alternatives is correct.

- (vii) The ANOVA procedure is a statistical approach for determining whether or not
 - (a) the means of two samples are equal
 - (b) the means of two or more samples are equal
 - (c) the means of more than two samples are equal
 - (d) the means of two or more populations are equal.
- (viii) Failure to acknowledge the borrowed material is called
 - (a) phishing
 - (b) spoofing
 - (c) misacknowledgement
 - (d) plagiarism.
- (ix) The most important advantage of collecting data by sampling method is
 - (a) increases accuracy
 - (b) time efficient
 - (c) easy data handling
 - (d) only method.
- (x) Population Census is an example of ___ Research.
 - (a) Survey
 - (b) Empirical
 - (c) Clinical
 - (d) Diagnostic

Group - B

- 2. (a) What is data? Differentiate between Primary and Secondary Data.
 - (b) Compare and contrast the terms “Research Methods” and “Research Methodology”.
- (3 + 3) + 6 = 12**
- 3. (a) What is Scientific Research? Give example. Write down the steps of scientific research.
 - (b) “A well defined research problem is half solved” – Justify it with appropriate examples.
- (3 + 5) + 4 = 12**

Group - C

- 4. (a) Bring out the importance of review of literature as a source of research problem. Explain the steps in developing a research plan.
 - (b) Explain Stratified Sampling with example.
- (5 + 3) + 4 = 12**
- 5. (a) The following are the number of departmental stores in 15 cities: 35, 17, 10, 32, 70, 28, 26, 19, 26, 66, 37, 44, 33, 29 and 28. If we want to select a sample of 10 stores, using cities as clusters and selecting within clusters proportional to size, how many stores from each city should be chosen?
 - (b) Compare and contrast the various methods of survey.

8 + 4 = 12

Group - D

- 6. (a) The distribution of yearly labour welfare expenses (in lakhs) of 88 firms in an industrial estate is shown in Table I. Find the quartile deviation of the yearly labour welfare expenses.

Table I

Labour Welfare Expenses (in lakhs)	No. of Firms
<10	5
10-20	8
20-30	10
30-40	15
40-50	20
50-60	10
60-70	7
70-80	4
80-90	3
>90	6

- (b) The distribution of annual revenues of 100 firms in a district is presented in the following Table II. Find the mean of the annual revenue of the firms.

Table II

Annual Revenue (in Crores)	No. of Firms
<2	10
2-4	15
4-6	20
6-8	30
8-10	8
10-12	5
12-14	4
14-16	3
>16	5

6 + 6 = 12

- 7. (a) Write the differences between t-test and ANOVA test. What is the Chi-Square Test?
- (b) A public opinion poll surveyed a simple random sample of 1000 voters. Respondents were classified by gender (male or female) and by voting preference (Republican, Democrat or Independent). Results are shown in the contingency Table III. Is there a gender gap? Do the men's voting preferences differ significantly from the women's preferences? Use a 0.05 level of significance.