

TIME:3 HRS

MM: 60

## SECTION - A

(5X4=20)

**NOTE: All questions carry equal marks. Attempt any four questions.**

Q1: Define research. What are the objectives of research? Briefly describe the different steps involved in a research process.

Q2: "Research design in exploratory studies must be flexible but in descriptive studies, it must minimize bias and maximize reliability." Discuss.

Q3: Distinguish between:

(a) Restricted and unrestricted sampling;

(b) Summated and Cumulative scales.

Q4: Explain the meaning of the following:

(a) Confidence level and significance level;

(b) Type I and Type II error;

Q5: An experiment was conducted to test the efficacy of Chloromycetin in checking typhoid. In a certain hospital Chloromycetin was given to 285 out of the 392 patients suffering from typhoid. The number of typhoid cases was as follows:

	<i>Typhoid</i>	<i>No Typhoid</i>	<i>Total</i>
<b>Chloromycetin</b>	35	250	285
<b>No chloromycetin</b>	50	57	107
<b>Total</b>	85	307	392

With the help of  $\chi^2$ , test the effectiveness of Chloromycetin in checking typhoid.(The  $\chi^2$  value at 5 per cent level of significance for one degree of freedom is 3.841).

Q6: What do you mean by multivariate techniques? Explain their significance in context of research studies.

## SECTION – B

(8X4=32)

**NOTE: All questions carry equal marks. Attempt four questions in total, selecting one from each subsection.**

Q7: (i) Write short notes on:

(a) Design of the research project;

(b) Ex post facto research;

(c) Components of a research problem;

(d) Rephrasing the research problem.

OR

Q7:(ii) Answer the following questions:

(a) What is research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem. Give suitable examples to elucidate your points.

(b) "Knowing what data are available often serves to narrow down the problem itself as well as the technique that might be used." Explain the underlying idea in this statement in the context of defining a research problem.

Q8: (a) The following are the number of departmental stores in 10 cities: 35, 27, 24, 32, 42, 30, 34, 40, 29 and 38. If we want to select a sample of 15 stores using cities as clusters and selecting within clusters proportional to size, how many stores from each city should be chosen? (Use a starting point of 4).

(b) What sampling design might be used to estimate the weight of a group of men and women?

OR

Q8: Write short notes on the following:

(a) Cross tabulation;

(b) Discriminant analysis;

(c) Coefficient of contingency;

(d) Multicollinearity;

Q9:(a) What are the alternative approaches of determining a sample size? Explain.

(b) If we want to draw a simple random sample from a population of 4000 items, how large a sample do we need to draw if we desire to estimate the per cent defective within 2 % of the true value with 95.45% probability.

OR

Q9: The following nine observations were drawn from a normal population:

27 19 20 24 23 29 21 17 27

(a) Test the null hypothesis  $H_0: \mu = 26$  against the alternative hypothesis  $H_a: \mu \neq 26$ . At what level of significance can  $H_0$  be rejected?(b) At what level of significance can  $H_0: \mu = 26$  be rejected when tested against  $H_a: \mu < 26$ ?

Q10: Write short notes on:

(a) Cluster analysis;

(b) Multidimensional scaling;

(c) Reflections in context of factor analysis;

(d) Maximum likelihood method of factor analysis;

OR

Q10: Write short notes on the following:

(a) The techniques of writing report;

(b) Characteristics of a good research report;

(c) Bibliography and its importance in context of research report;

(d) Rewriting and polishing of report.

## SECTION – C (Compulsory)

**NOTE: Attempt any one case study.**

**(8X1=8)**

**Q11:**

**CASE 1:** Team performance in XYZ Industries varies considerably across teams and from month to month. The senior VP in charge of team development thought that a team training program could improve the performance of these teams. A consultant convinced him that his firm's training program, which lasted only one week and cost Rs 25,000/- per team) could raise the performance of XYZ's teams. The VP, however, wanted to experimentally test the efficacy of this training program before he adopted it widely throughout the firm. So the consultant suggested the following experimental test:

There were 48 teams in XYZ that showed significant variation from month to month in their level of performance. The consultant chose the 24 worst performing teams based on last month's data and assigned them to the training group. "After all," he argued, "these were the ones who most needed it." The other teams were assigned to the control group. The training group received the training program (lasting one week) at the beginning of the next month while the control group teams did their normal routine. Performance scores were gathered at the end of the month. The results showed that the training group teams had a significantly larger rise (i.e., statistically significant) in their performance than did the control group teams (who, as a group, did not improve at all). The consultant proudly displayed these results and argued that they convincingly demonstrated the efficacy of his program.

How would you advise the VP? Specifically, what is the validity of the consultant's conclusions? If you think he might be mistaken, what specific threats to internal validity are particularly plausible?

**Q11:**

**OR**

**CASE 2:** Assume you are an organizational research design expert assigned to the Strategic Planning Department of a large multi-national manufacturing firm. The Department has developed a new, PC-based, software package called "STRATPACK". The software (and a one-week training course to learn how to use it) is intended to improve the long-range planning ability of middle and upper-level managers.

Your job as research design expert is to devise research (a design, a research strategy, a set of measures) that will allow you to evaluate the effectiveness of the STRATPACK program. Describe a research design for evaluating the program. Make sure that your research approach can be used in the future and at all sites in the company. When developing your plan, be sure to address at least the following issues:

- a) Discuss how your design and approach deals with the major forms of validity. Be sure to examine at least internal, external, and construct validity.
- b) The type of design you would select (e.g., a design where you manipulate the independent variable versus observe the independent variable). Compare and contrast the selected design with another possible design.
- c) How your design deals with the major forms of validity. Be sure to examine at least internal, external, and construct validity

-----**END**-----