

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
  2. Figures to the right indicates full marks.
  3. Draw neat and labelled diagrams wherever necessary.

**Q.1 a)** What do you mean by the term Ethics? Explain the need for ethics in research. **12**

**OR**

- a)** Describe the APA Ethics Code for research. **06**  
**b)** Explain the different categories of research with suitable examples. **06**

**Q.2 a)** Which are the different methods of data collection? **12**

**OR**

- a)** Write a note on different types of sampling? **06**  
**b)** Which are the different methods of data collection? **06**

**Q.3 a)** What is cluster analysis? What is the role of factor analysis and discriminant analysis over cluster analysis **12**

**OR**

**Q.3 a)** The study was to determine if there were differing levels of the anticardiolipin antibody IgG in subjects with and without thrombosis **06**

Group	Mean IgG levels (ml/unit)	Sample size	Standard deviation
Thrombosis	59.01	53	44.89
No thrombosis	46.61	54	34.85

We wish to know if we may conclude on the basis of these results that in general persons with thrombosis have on the average higher IgG levels than persons without thrombosis.

**b)** Which qualities should be noted for formulating hypothesis? **06**

- Q.4 a)** To study the difference in CD4 cell response in patients, 2 treatments and plasma were given to the subjects. **12**

% change in CD4	Treatme	Plasma
-12.60	1	1
-14.60	2	1
28.10	2	1
77.30	1	2
-0.44	1	2
50.20	1	2
48.60	2	2
86.20	2	2
205.80	1	2
100.00	1	2
34.30	1	2
82.40	1	2
118.30	1	2

Can one conclude that there is interaction between treatment and plasma levels? (Let  $\alpha=0.05$ )

**OR**

- Q.4 a)** Explain with example the difference between exploratory and descriptive research. **06**
- b)** Explain the concept of partial and multiple regression **06**

- Q.5** Write short notes on **(any three)**:- **12**
- i) One way ANOVA
  - ii) Applications of Chi-square test
  - iii) Need for report writing in research.
  - iv) Steps in research process.
  - v) Types of errors in hypothesis
  - vi) Difference between a research report and research proposal

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