

**RESEARCH METHODOLOGY, BIOETHICS AND IPR
(BTC5103)**

Time Allotted : 2½ hrs

Full Marks : 60

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 4 (four) from Group B to E, taking one from each group.*

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

Group – A

1. Answer any twelve:

12 × 1 = 12

Choose the correct alternative for the following

- (i) Which of the following regarding hypothesis is true?
(a) Hypothesis relates variables to constants
(b) Hypothesis relates constants to constants
(c) Hypothesis relates constants to variables
(d) Hypothesis relates variables to variables
- (ii) Which of the following statements is correct?
(a) Objectives of research are stated in first chapter of the thesis
(b) Researcher must possess analytical ability
(c) Variability is the source of problem
(d) All the above
- (iii) What is the name of the conceptual framework in which the research is carried out?
(a) Research hypothesis (b) Synopsis of research
(c) Research paradigm (d) Research design
- (iv) Which one is called non-probability sampling?
(a) Quota sampling (b) Cluster sampling
(c) Systematic sampling (d) Stratified random sampling
- (v) A null hypothesis is
(a) when there is no difference between the variables
(b) the same as research hypothesis
(c) subjective in nature
(d) when there is difference between the variables
- (vi) How long is a patent valid in India?
(a) 30 years (b) 20 years
(c) 40 years (d) 60 years

- (vii) Which of the following is (are) included in Geographical Indication of Goods?
 (a) Foodstuff (b) Manufactured
 (c) Handicraft (d) All of the above
- (viii) BT toxin is produced by the bacterium called
 (a) Bacillus thuringiensis (b) Bacillus anthracis
 (c) Bacillus thermophilus (d) Bacillus subtilis
- (ix) The rights of a patentee are
 (a) Sell or distribute (b) License
 (c) Assign the property to others (d) All of the above
- (x) Which institution approves the generation of appropriate biosafety data?
 (a) RCGM (b) GEAC
 (c) ICAR (d) DCGI

Fill in the blanks with the correct word

- (xi) _____ validity is the extent to which a measuring instrument provides adequate coverage of the topic
- (xii) _____ research focuses on 'cause and effect' relationship.
- (xiii) IBSC stands for _____.
- (xiv) The Trademarks Act was established in _____.
- (xv) The research which is exploring new facts through the study of the past is called _____ research.

Group - B

2. (a) Analyze the importance of literature review in formulating a problem. [[CO1] (Analyze/IOCQ)]
 (b) Design a comprehensive layout of a project report. [[CO2] (Design/HOCQ)]
 (c) Outline the various criteria of good research. [[CO2] (Outline/IOCQ)]
4 + 4 + 4 = 12
3. (a) How does a researcher define the objectives of a research work? [[CO1] (Plan/LOCQ)]
 (b) Distinguish between Disciplinary and Subject-matter research with examples. [[CO2](Differentiate/IOCQ)]
 (c) Give a brief description of the different research methods. [[CO1](Remember/LOCQ)]
4 + 4 + 4 = 12

Group - C

4. (a) What do you mean by exploratory and descriptive research studies? [[CO2] (Remember/LOCQ)]
 (b) Discuss the 'Principle of local control' in setting up an experimental design. [[CO2] (Analyze/IOCQ)]
 (c) Design an experiment using the 'Randomized block design' method. [[CO2](Design/HOCQ)]
4 + 4 + 4 = 12

5. (a) What do you mean by dependent and independent variable? *[(CO2)(Remember/LOCQ)]*
 (b) Discuss the role of extraneous variables in research work. *[(CO2)(Outline/IOCQ)]*
 (c) How can you examine your hypothesis by statistical methods? *[(CO2)(Analyze /IOCQ)]*
(2 + 2) + 4 + 4 = 12

Group - D

6. (a) What is meant by trade secrets? How are trade secrets guarded? *[(CO3)(Remember/LOCQ)]*
 (b) Explain the three main postulates on convention of biological diversity. What is meant by TK? *[(CO4)(Apply/IOCQ)]*
 (c) Using any one of the misuses show how TK can be misinterpreted. *[(CO3)(Analyze/IOCQ)]*
4 + 6 + 2 = 12
7. (a) What are the different types of postnatal gene therapy? *[(CO4)(Understand/LOCQ)]*
 (b) Analyze the three categories of genetic disorders. *[(CO4)(Analyze/IOCQ)]*
 (c) Discuss about pros and cons of genetic engineering. *[(CO4)(Apply/IOCQ)]*
4 + 4 + 4 = 12

Group - E

8. (a) Define the four main biosafety levels. *[(CO4)(Remember/LOCQ)]*
 (b) Describe the functions of GEAC regulations with a flow chart. *[(CO4)(Understand/LOCQ)]*
 (c) What is meant by limits of a patent? *[(CO3)(Apply/IOCQ)]*
4 + 4 + 4 = 12
9. (a) Evaluate using examples the two types of patents. *[(CO3)(Evaluate/HOCQ)]*
 (b) Analyse the procedure of patenting. *[(CO3)(Analyze/IOCQ)]*
 (c) Evaluate the case studies of turmeric and neem patents. *[(CO3)(Evaluate/HOCQ)]*
4 + 4 + 4 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	33.33	50	16.67

