

**Module-I : Research Methodology**

P. Pages : 2

Time : Three Hours



**AC - 4000**

Max. Marks : 80

- Notes : 1. Attempt all **five** questions.  
2. Each questions carries 16 marks.

1. Answer **any four** from the following.

- a) Define research, research methods, and research methodology.
- b) Describe various types of research.
- c) Explain the significance of information communication technology (ICT) in contemporary research.
- d) Differentiate between Null and Alternative hypothesis.
- e) Describe basic traits of a research scholar.
- f) "Research is a process whose output is discovery". Comment.

2. Answer **any four** from the following.

- a) Enumerate various sources of literature and describe the procedure for literature review.
- b) "The purpose of literature review is to formulate the research problem". Justify the truth of this statements.
- c) What are the five characteristics of research objectives. Explain with suitable example.
- d) In the context of research, explain system modeling.
- e) Describe the research databases Scopus; web of science.
- f) Explain various types of research variables.

3. Answer **any four** from the following .

- a) Draw a neat flow diagram for testing a hypothesis.
- b) Calculate the mean and median of the following data:  
i) 7, 7, 7, 7, 7, 7, 7                      ii) 1, 2, 3, 4, 5, 6, 7
- c) Compare and contrast one – tailed and two – tailed tests.
- d) State and explain various methods of data collection.

- e) Describe static and dynamic characteristics of instruments.
- f) With reference to data collection, describe briefly various sampling methods.

4. Answer **any four** from the following .

- a) Articulate the layout of a scientific research paper indicating the purpose of each section
- b) Enlist and describe various software tools useful in the preparation of research thesis.
- c) Describe various phases in organizing a national – level conference on scientific / technical topic.
- d) Clearly bring out the differences among technical events: seminars, conferences, workshops, symposiums.
- e) Explain various types of reports.
- f) Describe the purpose of each of the following parts of a research thesis : abstract, acknowledgements, citations/references; resume'.

5. Answer **any four** from the following.

- a) Consider the example of a 'Laptop'. With reference to IPR, list out the components that fall under patents, copyrights, trademarks, and designs for a laptop.
- b) Describe various sections in a patent.
- c) What is meant by 'Plagiarism'? Enumerate at least three tools available for plagiarism checking.
- d) Describe briefly the ethical issues in Research.
- e) With the help of suitable example, explain the meaning of the term 'impact factor' of a journal.
- f) With reference to IPR, describe the purpose of
  - i) Geographical Indications.
  - ii) Trade Secrets.

\*\*\*\*\*