



M.E / M. TECH DEGREE EXAMINATIONS: NOV/ DEC 2024

(Regulation 2024)

First Semester

DATA SCIENCE

24DSI502: Research Methodology and Ethics

COURSE OUTCOMES

- CO1: Understand the concepts of research and formulate a research problem.
 CO2: Design and plan the research, collect data, interpret data and organize data.
 CO3: Demonstrate skill in writing research papers and prepare effective presentation.
 CO4: Understand the philosophy of science and ethics, research integrity and publication ethics.
 CO5: Understand the indexing and citation databases.
 CO6: Familiarize the types of open access publications and research metrics.

Time: Three Hours

Maximum Marks: 100

PART A (4*20 = 80 Marks)

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|----|----|---|---|-----|-------------------|
| 1. | a) | What do you understand by term Research Problem? What are the objectives of Research Problem? | 5 | CO1 | [K ₁] |
| | b) | How to do you go about formulating research problem? How do you organize your research work? | 5 | CO1 | [K ₂] |
| | c) | What is Hypothesis? What is the significance of formulating the hypothesis in research work? | 5 | CO2 | [K ₄] |
| | d) | List and explain the characteristics of good research problem. | 5 | CO1 | [K ₂] |
| 2. | a) | List and elaborate various methods of collecting primary data. | 5 | CO3 | [K ₂] |
| | b) | What are the data presentation tools? Explain them in brief | 5 | CO3 | [K ₂] |
| | c) | Explain with neat sketches various charts used in presentation of data. | 5 | CO3 | [K ₂] |
| | d) | Explain various sources of obtaining data for the selected research problem. | 5 | CO3 | [K ₂] |
| 3. | a) | Explain essential features of report writing highlighting the importance and implication of research outcomes | 5 | CO3 | [K ₁] |
| | b) | What is oral presentation? What are merits and demerits of oral | 5 | CO3 | [K ₂] |

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| | presentation? | | | |
| c) | List and discuss the items of main body of typical thesis. | 5 | CO4 | [K ₃] |
| d) | Discuss the guidelines for preparing bibliography. | 5 | CO4 | [K ₄] |
| 4. a) | What are the various means of conducting literature survey in modern times? | 5 | CO4 | [K ₃] |
| b) | Briefly explain the following: | 5 | CO6 | [K ₄] |
| | a. Scopus Indexed Journals | | | |
| | b. Science Citation Index | | | |
| | c. Journal Impact Factor | | | |
| | d. h – Index | | | |
| | e. SJR | | | |
| c) | What is plagiarism? How plagiarism can be detected using online tools? | 5 | CO4 | [K ₂] |
| d) | How can you ensure that your research report is free from plagiarism before submission? | 5 | CO4 | [K ₅] |

Answer any ONE Question

PART B (1*20 = 20 Marks)

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| 5. a) | Assume a research topic of your choice and give the complete format of its research report | 20 | CO5 | [K ₆] |
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OR

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| 6. a) | Discuss the importance of critical literature review and its uses in planning innovation research | 10 | CO5 | [K ₂] |
| b) | Explain various job benefits in innovation research | 10 | CO5 | [K ₂] |
