

M.Sc. (Chemistry) (NEP Pattern) Semester-I  
**NEP-15 / 01MSCCH09 - Research Methodology**

Time : Three Hours



**Max. Marks : 80**

Notes : 1. All questions are compulsory.  
2. Each question carries equal marks.

1. a) What are the different types of research? Explain in detail. **8**
- b) What is research proposal? Explain its design and components. **8**

**OR**

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|-----------|--|---|
| c)        | Explain qualitative type of research.                              | 4 |
| d)        | Write a note on conceptual research.                               | 4 |
| e)        | What is analytical research? Explain in brief.                     | 4 |
| f)        | Explain in brief fundamental type of research.                     | 4 |
| <b>2.</b> |  |   |
| a)        | Give the importance of literature review in designing the problem. | 8 |
| b)        | Explain in details-  | 8 |
| i)        | Primary sources  |   |
| ii)       | Secondary sources  |   |

**OR**

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|-----------|---|-------------|
| c)        | What is hypothesis? Explain its role in designing the research proposals.               | 4           |
| d)        | What is Patent? What are the different steps for filing the Indian patent.              | 4           |
| e)        | What is treatise? Give the details on treatise in context of research.                  | 4           |
| f)        | Explain the process of developing a working hypothesis.                                 | 4           |
| <b>3.</b> |   | <b>8</b>    |
| a)        | Explain in detail-  |             |
| i)        | h-index   | ii) i-index |
| b)        | What is google scholar? Give the various steps for creating the google scholar account? | 8           |

**OR**

- c) Give the significance of Scopus indexed journals. 4
- d) What are the different formats used for submission of research papers in e-journals. 4

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|-----------|--|---|
| e)        | What is impact factor? How it is calculated?   | 4 |
| f)        | What is TOC? Describe various steps for subscribing TOC alerts.                                | 4 |
| <b>4.</b> | a) Describe the various steps for writing the research papers.                                 | 8 |
|           | b) What are short communications in research? Give the characteristics of short communication. | 8 |

**OR**

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|-----------|--|---|
| c)        | Write a note on Predatory Journals and Publishers.                               | 4 |
| d)        | What is monographs? Explain in brief.  | 4 |
| e)        | Give the importance of review articles in research.                              | 4 |
| f)        | What ethics should be followed while publishing the research paper.              | 4 |
| <b>5.</b> | a) What is research?   | 2 |
|           | b) Define Quantitative research.   | 2 |
|           | c) What is review of literature?   | 2 |
|           | d) What is IPR?  | 2 |
|           | e) Name the software which is commonly used for drawing the chemical structures. | 2 |
|           | f) What is chemspider?   | 2 |
|           | g) What is dissertation?   | 2 |
|           | h) What is Plagiarism?   | 2 |

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