

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

P. Pages : 2

Time : Three Hours



GUG/W/24/15077

Max. Marks : 80

Notes : 1. All questions are compulsory and carry marks as indicated.

1. a) What are the key differences between qualitative and quantitative research methodologies, and how should researchers decide which approach to use in a given study? What are the advantages and disadvantages of each? 8

b) What is the role of research design in determining the overall structure and flow of research proposals? How do variables, constructs, and operationalization fit into the design process? 8

OR

c) Explain different types of research. 4

d) Explain research methods and research methodology. 4

e) Differentiate between conceptual and empirical research methodology. 4

f) Write a short note on Descriptive and analytical research methodology. 4

2. a) Explain the importance of a literature review in defining a problem? How does it contribute to the development of a research project's theoretical framework and research questions? 8

b) What is the role of a monograph and patent in research, and how does it differ from other types of scholarly publications such as journal articles or conference papers? 8

OR

c) Explain different types of research hypothesis. 4

d) Which are the primary and secondary sources of literature review. 4

e) What criteria should be considered when choosing a research problem? 4

f) Explain the layout of formulation of research problem. 4

3. a) How data analysis can be carried out using MS Excel, Chemdraw and MATLAB. 8

b) Explain in detail. 8

i) Hot article

ii) Research gate

iii) Chempider

iv) Scifinder

OR

- c) What is difference between google scholar and Scopus. 4
- d) Explain the importance of data security and integrity when using scientific software for research design. 4
- e) What do you mean by journal impact factor? How it is calculated. 4
- f) Explain the difference between h-index, i10-index and citation index. 4
- 4. a) Explain the layout of research paper. 8
- b) What ethical considerations should guide the use of images, figures and other visual materials in research papers. 8

OR

- c) What do you mean by predatory journals and publishers. 4
- d) Explain the difference between authored books and edited books. 4
- e) What do you mean by survey reports. 4
- f) Explain the outline of short communication. 4
- 5. a) What are the qualities of good research. 2
- b) What do you mean by applied and fundamental research. 2
- c) Define research. 2
- d) What do you mean by treatise. 2
- e) Name any two journal whose impact factor is more than 10. 2
- f) The term h-index was given by scientist. 2
- g) What do you mean by dissertation. 2
- h) What is peer reviewing. 2
