

SL No of QP :5888

Unique Paper Code: 2173522013

Name of the Paper: DSE: RESEARCH METHODOLOGY FOR CHEMISTS

Name of the Course: B.Sc. (Prog)/Life Sciences/Physical Sciences with Chemistry

Semester: 6

Duration: 3 hrs

Maximum Marks: 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any 6 questions.
3. All Questions carry equal marks.

1. (a) "Literature review is an integral part of the research process". Explain the statement in detail.

(b) What are research metrics? Explain how these metrics help in evaluating research quality?

(c) Differentiate between primary, secondary, and tertiary sources of information with suitable examples.

(5, 5, 5)

2. (a) Describe the key steps involved in the research process, from identifying a research problem to reporting the results?

(b) What is a research hypothesis? How is it formulated, and what role does it play in designing a research experiment?

(c) What is an annotated bibliography and how it is different from a regular bibliography?

(5, 5, 5)

3. (a) What is plagiarism? Name any two commonly used plagiarism detector tools. Briefly describe effective strategies to avoid plagiarism in academic writing.

(b) Describe the different types of breaches of ethical principal in academic writing. Highlighting how these breaches can impact the credibility of researcher.

(c) What do you understand by Intellectual Property Rights (IPR)? Discuss various ways through which IPR can be commercialized.

(5, 5, 5)

4. (a) What are the common problems that lead to unethical behavior in research and publication?

(b) What is the importance of author identifiers like ORCID, Publons, and VIDWAN?

(c) What is the role of visual aids in scientific communication? Discuss how it helps in preparing illustrations for research papers or theses.

(5, 5, 5)

5. (a) Discuss the different types of scientific misconduct. Explain how it affects the integrity of scientific research.

(b) What are the major guidelines provided by the Committee on Publication Ethics (COPE)?

(c) Discuss how conflicts of interest and authorship issues contribute to publication misconduct.

(5, 5, 5)

6. (a) List the different types of technical documents used in scientific communication. Briefly describe any **three** of them.

(b) What is a citation style? Briefly explain APA and Oxford referencing styles.

(c) What are citation management tools? Name any two tools used for managing references.

(5, 5, 5)

7. (a) Explain h-index and i10 index.

(b) What are the key steps involved in writing a thesis? Mention any three software tools commonly used in thesis preparation and their purpose.

(c) Discuss the concepts of authorship and contributorship. How can disputes in authorship lead to violations of publication ethics?

(5, 5, 5)

8. (a) What are the essential components of project proposal? Describe how each component should be prepared.

(b) What do you understand by term "Oral Presentation"? Describe key characteristics of an effective oral presentation.

(c) Describe Full length research paper, book chapters and reviews.

(5, 5, 5)