

**Ph. D. IN CHEMISTRY  
(PHDCHEM)  
Term-End Examination  
December, 2025**

**RCH-001 : RESEARCH METHODOLOGY**

*Time : 3 Hours*

*Maximum Marks : 100*

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**Note** : Attempt *all* the questions given below.

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1. "Even if the methods considered in two research problems are same, the methodology may be different". Justify this statement giving a suitable example. 10
2. Formulate a hypothesis in any research area of your choice and describe the steps in conducting research based on that hypothesis. 20
3. Name the ethical standards in scientific research. Describe and differentiate between them giving examples. 10
4. List any five core principles of ethics in scientific research. Explain any *two* of these. 10

[ 2 ]

5. Expand the acronym RAMP and explain the concepts involved in each. 10
6. Explain the salient features of (a) EXCEL (b) Chem sketch. 10
7. (a) Why is an abstract essential for the publication of a paper in a research journal ? 5
- (b) Why is literature review included in the thesis ? 5
8. (a) Give *two* examples of citing a paper from a journal in the ACS format. 5
- (b) What are errors in statistical analysis ? How can these be avoided ? 5
9. (a) Write the full form of OER and give its advantages. 5
- (b) Write the special features of online teaching-learning. 5

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