

3028

- (b) What are SI units? Explain their importance in scientific measurements with suitable examples. 5
- (c) Summarize the emergency response procedures for managing a chemical fire in a laboratory. 5
7. (a) Explain the safe practices for the storage of chemical waste prior to its disposal. 5
- (b) Discuss the significance of curve fitting in the analysis of experimental data. 5
- (c) Outline the first-aid procedures to be followed in case of chemical exposure to the eyes in a laboratory. 5
8. (a) Discuss the precautions that should be considered while interpreting the results of regression analysis. 5
- (b) Describe the first-aid measures to be followed in cases of exposure to corrosive chemicals. 5
- (c) Explain the concept and significance of standard deviation and variance in data analysis. 5

[This question paper contains 4 printed pages]

Your Roll No. :

Sl. No. of Q. Paper : **3028** **I**

Unique Paper Code : 2173550007

Name of the Paper : DSE : Research Methodology for Chemists

Name of the Course : **B.Sc.(Prog.)
Analytical Chemistry**

Semester : VI

Time : 3 Hours **Maximum Marks : 90**

Instructions for Candidates :

- (a) Write your Roll No. on the top immediately on receipt of this question paper.
- (b) Attempt any **six** questions from the total of **eight** provided in the question paper.
- (c) Answer **all** parts of a question together.
1. Attempt any **three** of the following and write short notes : $5 \times 3 = 15$
- (a) What are Chemical Abstracts, discuss their importance ?
- (b) Explain the Beilstein database and its use in research.

- (c) Discuss ethics involved in scientific publications.
- (d) Define plagiarism and explain its significance in academic writing.
- 2.** (a) Explain in detail the different types of information sources primary, secondary, and tertiary. Provide appropriate examples for each category. 5
- (b) Discuss the role and significance of electronic resources such as e-consortiums, UGC-Infonet Digital Library Consortium, e-journals, and e-books in promoting academic and scientific research. 5
- (c) What is Google Scholar? Describe its main features, for chemical research. Briefly compare it with Scopus. 5
- 3.** (a) What is the historical significance of print resources in libraries, and how have they contribute to research and education? 5
- (b) Explain how discussion groups and online communities benefit researchers. 5
- (c) Discuss the relevance of TOC alerts and Hot Articles in keeping researchers updated. 5

- 4.** (a) Write short notes on Chemindustry and ChemSpider. Discuss their role as sources of chemical information. 5
- (b) What is meant by the h-index? How it is determined and comment on its significance with a suitable example. 5
- (c) What are review articles? Discuss their importance in scientific research and literature. 5
- 5.** (a) Discuss the role of descriptive statistics in summarizing experimental data and outcomes. 5
- (b) Describe the application of the scientific method in the design and conduct of experiments. 5
- (c) Discuss the importance of using protective apparel during experimental activities in the laboratory. 5
- 6.** (a) Discuss the ventilation requirements and safety standards necessary in chemistry laboratories, when handling hazardous gases. 5