

Duration : 2 ½ Hrs.

[Max. Marks : 60]

N. B. : (1) All questions are Compulsory.
(2) Figure to the right indicate full marks.

- Q. 1** **A)** Attempt **any two** of the following: **8**
- i** Describe the step wise process for Abstract writing
 - ii** What is a search engine? Gives details about types of search engine.
 - iii** Explain Scopus Explain role of SciFinder and ScienceDirect in research.
 - iv** What are the types of web sources? Explain each with suitable example.
- B)** Attempt **any one** of the following: **4**
- i** Explain the following terms: a) Citation index b) Impact factor c) H index.
 - ii** What is an e-journal? Gives its advantages and disadvantages
- Q. 2** **A)** Attempt **any two** of the following: **8**
- i** Give any four principles of experimentation.
 - ii** What is ANOVA? Give the partitions of total variation in one way ANOVA.
 - iii** Define the terms Accuracy and Precision with examples.
 - iv** What is curve fitting? Write a note on two general approaches for curve fitting.
- B)** Attempt **any one** of the following: **4**
- i** What is SI system? Give any four SI units commonly used by chemists.
 - ii** Define multiple linear regression model. Write a note on any one aspect of multiple regression modelling.
- Q. 3** **A)** Attempt **any two** of the following: **8**
- i** Write a note on language issues in research papers.
 - ii** What are the guidelines for writing project report?
 - iii** State the salient features of preparation and delivering talk of Presentation.
 - iv** Gives steps of peer Review process of journals after submission of research paper
- B)** Attempt **any one** of the following: **4**
- i** Write in brief general structure of research paper.
 - ii** What is a Scientific poster? Give its advantages and disadvantages.
- Q. 4** **A)** Attempt **any two** of the following: **8**
- i** Explain the general procedure for laboratory disposal of explosives.
 - ii** Discuss the guidelines for materials that may be disposed of through the sanitary sewer system.
 - iii** Write a note on toxic chemicals.
 - iv** Define laboratory ventilation. Explain in detail any one types of laboratory ventilation.

- B)** Attempt **any one** of the following: **4**
- i** Write any four steps of emergency response procedures.
 - ii** Explain in brief any three accessories that must be present in the vehicle transporting hazardous chemicals.

- Q. 5** Attempt **any four** of the following: **12**
- A)**
 - i** Write any two citation tools.
 - ii** Gives two examples of secondary sources.
 - iii** Name the database used to find organic chemistry related data.
 - B)** Discuss the terms: a) Chem Industry b) ChemSpider.
 - C)** What is weighted least square regression? Give any two disadvantages of weighted least square regression.
 - D)** Define any three terms from the following: Mean, Median, Mode, Range, Variance.
 - E)** How will you overcome Minor and Major Interruptions during research Presentation?
 - F)** Define 'Research'. Explain steps for Scientific Method of Research.
 - G)** What is Incineration? Explain in brief, hazardous waste incineration.
 - H)** Write a note on recycling of laboratory chemicals.
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