

This question paper contains 3 printed pages]

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S. No. of Question Paper : 5621

Unique Paper Code : 2173012019

Name of the Paper : DSE : Research Methodology for Chemists

Name of the Course : B.Sc. (Hons.) Chemistry

Semester : VI

Duration : 3 Hours

Maximum Marks : 90

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt any six questions.

All questions carry equal marks.

1. (a) What is the purpose of literature review in the research process ? How can it help in conducting research ?
(b) What is plagiarism ? Explain one technique to remove plagiarism.
(c) What does the *h*-index indicate in research metrics ? How is it evaluated ? 5,5,5
2. (a) Differentiate between primary and secondary sources of information with examples.
(b) What is TRIPS agreement ? Explain its general features and principles.
(c) What are publication ethics ? Explain COPE in context with publication ethics. 5,5,5

P.T.O.

3. (a) Define e-Consortium and state its purpose giving examples. How does it differ from e-books ?
- (b) Explain the statistical methods used for hypothesis testing : *t*-test, F-test, ANOVA.
- (c) What does impact factor of a journal indicate ? Elucidate the steps involved in finding the impact factor of a journal. 5,5,5
4. (a) Name *one* journal published by each of the following publishing groups, in the field of Chemistry :
- (i) ACS
- (ii) Elsevier
- (iii) RSC
- (iv) Wiley
- (v) Springer.
- (b) Discuss different forms of Intellectual Property Rights. How are they useful ?
- (c) State the methodology involved in data collection and its analysis. 5,5,5
5. Write short notes on any *three* of the following :
- (a) ANOVA
- (b) Google Scholar
- (c) Orcid
- (d) Chi-square test. 5,5,5

6. (a) What is Chem draw ? How does Chem draw help a chemist in research ?
- (b) What is the median score achieved by a student who recorded the following scores on 10 tests ?
- 68, 55, 70, 62, 71, 58, 81, 82, 63, 73.
- (c) Explain :
- (i) Hypothesis
- (ii) Formulating a research problem. 5,5,5
7. (a) What do you mean by CAS ? What is it use ?
- (b) List out different steps of thesis writing and mention the software commonly used.
- (c) Name and briefly explain the tools used for citation management. 5,5,5
8. (a) Find the standard deviation of the average temperatures recorded over a five-day period last winter : 18, 22, 19, 25, 12.
- (b) Describe the key characteristics of a well-formulated hypothesis.
- (c) Explain the key elements in designing a research/experiment. 5,5,5