

**Ph.D. IN CHEMISTRY  
(PHDCHEM)**

**Term-End Examination**

**00321** December, 2017

**RCH-001 : RESEARCH METHODOLOGY**

*Time : 3 hours*

*Maximum Marks : 100*

**Note :** Answer *all* the questions.

1. (a) How are qualitative research designs developed ? Briefly describe the various methods/techniques for generating data for qualitative research work. 15
- (b) What are the possible motivations for doing research in chemistry ? 5
2. (a) Give the full forms of OER, ODL, MOOC and explain any one of these. 5
- (b) Briefly describe the salient features of the software ChemSketch. 5
- (c) What is the importance of literature review in research ? 10
- (d) Differentiate between systematic and random errors, giving suitable examples from research in chemistry. 10

3. Why is the study of ethics and the related issues essential while pursuing research in science disciplines ? Enlist the issues of ethics in chemical research and elaborate them. 20
  
  4. Write the unique properties that make liquefied gases more hazardous than liquid and solid materials used in a chemistry laboratory. Describe the hazards caused due to each of the properties mentioned. 20
  
  5. What is the purpose of references in a paper published in a journal ? Write the general format of writing references of a chapter in any publication, as per the APA and ACS styles, respectively. 10
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