

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc. Winter 2018-19 Examination

Semester: 2

Subject Code: 11205154

Subject Name: Analytical Chemistry II

Date: 19/12/2018

Time: 10:30 am to 1:00pm

Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Write Brief note (Each of 04 marks) (08)**
- (a) Write note on Line of regression.
 - (b) Explain the terms with equation: Mean Deviation & Standard Deviation.
- Q.1. B) Answer the following questions (Any two) (04)**
- (a) Do as directed (04)
 1. Explain coupling constant.
 2. Explain why TMS is used as reference standard in NMR.
 - (b) Short note on Types of Error. (04)
 - (c) Short note on Karl's Pearson's co-efficient of correlation. (04)
- Q.2. A) Answer the following questions. (04)**
- (a) Write Short answers: - (Each of 02 marks) (04)
 1. Give the applications of Electron Spin Resonance (ESR) Spectroscopy.
 2. Define mean & median with formula.
 - (b) Short note on Chemical shift & factors affecting chemical shift. (04)
- Q.2. B) Answer the following questions (Any two) (03)**
- (a) Multiple Choice questions (Each of 01 marks) (03)
 1. Random error can be reduced by ----- the sample size.
 - a) Increasing b) Decreasing c) both a & b d) None
 2. Chemical shifts of proton have a frequency range of about----
 - a) Megahertz b) Kilohertz c) 10 Hz d) 250 MHz
 3. Relative to a 2D, a 3D experiment has better-----
 - a) Resolution b) Baseline c) Line Shape d) S / N ratio
 - (b) Short note On Spin-Spin Coupling. (03)
 - (c) Write the rules predicting spin numbers of nuclei. (03)
- Q.3. A) Write Brief note on: (Each of 04 marks) (08)**
- (a) Write the Principles of Good Laboratory Practices.
 - (b) Differentiate between Fluorescence & Phosphorescence.
- Q.3. B) Answer the following questions (Any two) (04)**
- (a) Write Short Answers: - (Each of 02 marks) (04)
 1. Give main applications of Microwave spectroscopy.
 2. Write the Principle of Microwave spectroscopy.
 - (b) Short note on Born-Oppenheimer Approximation. (04)
 - (c) Short note on Stark Effect. (04)
- Q.4. A) Answer the following questions. (04)**
- (a) Write short note on: - (Each of 02 marks) (04)
 1. What are the advantage of SOP?
 2. Define gaseous pollutant and soluble pollutant.
 - (b) Write the remedial methods used for control of industrial air pollution. (04)
- Q.4. B) Answer the following questions (Any two) (03)**
- (a) Multiple choice questions. (Each of 01 marks) (03)
 1. The minimum size of smoke particles is-----
 - a) 1 Um b) 5 Um c) 0.5 Um d) 2 Um
 2. ----- Industries produce Sulphur Dioxide & fly ash pollutants.
 - a) Textile b) Thermal c) Food d) All of above
 3. Full form of SOP is -----
 - a) Safety Operation Procedure b) Standard Operating Procedure c) Sum of process
 - d) Silicon on Product
 - (b) Short note on Audit & its types. (03)
 - (c) Differentiate accuracy and precision. (03)