

(35 & A-8)

No. of Printed Pages: 3

**SARDAR PATEL UNIVERSITY**

M.Sc. -Chemistry Examination II Semester

Wednesday,

Date: 13-04-2016

Time: 10.30 a.m. to 01.30 p.m.

Subject: Analytical Chemistry Paper: PS02ECHE01

[Total Marks: 70]

- N.B.** (1) Figures to the right indicate full marks.  
(2) Attempt all questions.

**Q. 1** Select the correct answer from each of the following: **(08)**

1. Separation procedure can be used for \_\_\_\_\_.  
(a) Redox reactions (b) Complexing reactions  
(c) Qualitative identification (d) None of all
2. Which are the GMP component from the following:  
(a) Management System (b) facility requirements  
(c) Both are correct (d) None of all
3. Which of the following detectors are not suitable in infrared region?  
(a) photomultiplier (b) Golay cell (c) thermocouple (d) bolometer
4. Which one is based on Emission phenomenon methods  
(a) AAS (b) Fluorescence (c) NMR (d) Above all
5. Answer of  $\log_{10} 8.723 \times 10^3$  expressed in significant figure is \_\_\_\_\_.  
(a) 3.9406658 (b) 3.940 (c) 3.9407 (d) 3.94067
6. Modern analytical chemistry is dominated by  
(a) Instruments (b) Computer (c) Laboratory (d) Vehicle
7. \_\_\_\_\_ is required as the material for the cell for work in the ultra violet region.  
(a) Fused silica (b) Glass (c) KBr (d) all of above
8. Separation of large molecules or particle from smaller ions, under the influence of a electric field is known as \_\_\_\_\_.  
(a) Ionophoresis (b) Electrophoresis  
(c) Electro-dialysis (d) None of all

①

(P.T.O.)

**Q. 2** Answer the following: **(Any Seven)** **(14)**

- (i) Differentiate classical and instrumental techniques.
- (ii) Discuss the principle of GC according to Henry's Law.
- (iii) Write the five forms of electromagnetic radiations.
- (iv) Explain the term "Retrospective Validation".
- (v) Draw neat and labeled block diagram of typical emission spectrometer.
- (vi) Enlist various methods used for preparation of thin layers in TLC.
- (vii) Classify the analytical techniques based on principle and phenomenon.
- (viii) Define: error and significant figure.
- (ix) Write various types of literature sources with suitable example.

- 3** [a] Discuss in detail on good manufacturing practices and its components. **(6)**  
[b] Differentiate validation and verification. Write in brief on categories of validation. **(6)**

**OR**

- [b] Discuss the steps involved in typical quantitative analysis with suitable example. **(6)**

- 4** [a] Define and distinguish the following: **(6)**

- [i] Accuracy and Precision.
- [ii] Determinate and Indeterminate error.

- [b] Answer the following: **(6)**

- [i] The solution of  $H_2SO_4$  contain 80% by weight. Specific gravity of this solution is 1.71 g/cc. Determine normality of the solution.
- [ii] How many gram of table salts containing 15% moisture are required to prepared 1000 gm of a 20% salt solution?

**OR**

- [b] Answer the following:  
[i] The rules for representing SI units. **(6)**

- [ii] How many gram of 25% solution of KOH should be added to 400 ml of water to prepare 15% solution?

- 5** [a] Discuss in brief on following: **(8)**

- [i] Interaction of EMR with matter.
- [ii] Wavelength selection in optical instruments.

- [b] Define the terms : Photoelectric effect and Compton effect **(4)**

**OR**

- [b] Describe in brief on radiation sources used in optical instruments. **(4)**

6 [a] Draw neat and labeled schematic diagram of gas chromatograph and explain briefly each and every component. (6)

[b] Discuss in brief on following: (6)

[i] The methods used for development of paper chromatography.

[ii] Various adsorbents used in TLC

OR

[b] Enumerate various methods of separation along with their principle of working. (6)

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(3)