



UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Fourth Semester – 2020

Paper: Chemistry-IV (General Chemistry)

Course Code: CHEM-203/CHM-22304 Part-I (Compulsory) Time: 15 Min. Marks: 10

Roll No. in Fig.

Roll No. in Words.

Signature of Supdt.:

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY.

Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

- Q.1. Encircle the right answer cutting and overwriting is not allowed. (10x1=10)
- Inverse of wavelength is called
 - Frequency
 - Wave Number
 - Hertz
 - λ
 - In which of the following technique, Electronic transitions are not involved in its necessity?
 - Infrared Spectrometry
 - UV/Vis Spectrophotometry
 - Atomic Absorption Spectrophotometry
 - Flame Emission Spectrometry
 - The wave number of a transition is 2000cm^{-1} , in which part of the electromagnetic spectrum does it comes?
 - Infrared
 - Microwaves
 - Ultraviolet
 - Visible
 - Cyanohydrin of which of the aldehyde on hydrolysis yields Lactic acid?
 - Prapanal
 - Butanal
 - Ethanal
 - Pentanal
 - The mode of 12, 17, 16, 14, 13, 16, 11, 13 is
 - 14
 - 13
 - 16
 - 13 and 16

- vi) In Atomic Absorption Spectroscopy, which of the following is the generally used radiation source?
- Tungsten Lamp
 - Hollow Cathode Lamp
 - Xenon mercury Arc Lamp
 - Hydrogen Lamp
- vii) Which of the following gives negative sodium bisulphite test
- Acetone
 - Acetaldehyde
 - Butanone
 - 3-hexanone
- viii) Aqueous solution of which of the following compounds is the best conductor of electric current?
- Acetic acid
 - Ammonia
 - Hydrochloric acid
 - Fructose
- ix) In dilute electrolytic solution, each ion migrates independently of its co-ion is the concept of
- Kohlrausch's Law
 - Faraday's 1st Law
 - Ostwald's Dilution Law
 - Faraday's 2nd Law
- x) Consider the following data for Elements X, Y and Z
X, $E_{\text{oxd}} = +0.876\text{V}$
Y, $E_{\text{red}} = +0.54\text{V}$
Z, $E_{\text{red}} = -1.77\text{V}$
Which of the following is the strongest reducing agent.
- X
 - Y
 - Z
 - Y and Z



ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers of the following: (10x2=20)

- i. How acetic acid is converted into acetone?
- ii. Why Ketones are less reactive than Aldehydes?
- iii. What is Hiesenberg's Uncertainty Principle? Give its mathematical form.
- iv. What are probability functions?
- v. What is Cell constant?
- vi. What are acid anhydrides? Give its preparation method.
- vii. Differentiate between Mean and Mode.
- viii. State Law of mass action and give its mathematical statement.
- ix. Give the basic principle of UV spectroscopy.
- x. "Chloroacetic acid is stronger than Acetic acid", Justify.

Q.3. Give brief answers of the following. (6x5=30)

- a) Explain the construction and working of IR spectrophotometer. (5)
- b) Give three types of Errors. How they can be detected and eliminated? (5)
- c) Give the detailed concept of Eigen values, Eigen functions and wave function normalization. (5)
- d) Give the Elementary treatment of Compton and Photoelectric effect. (5)
- e) Explain Kohlrausch's law. Give its application. (5)
- f) Explain Kochi Reaction along with its mechanism (5)