SUK-KVMW

B.Sc. (Part-I) (Semester-II) (NEP)
Examination March 2023
CHEMISTRY (Paper-IV)
DSC-4B: Analytical Chemistry
Sub. Code: 90225

Day and Date: **Total: 40 mark**

Time:

Instruction: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams wherever necessary.

Q.1) Choose the most correct alternative for each of the following and rewrite the sentences: **[8]**

1. Accuracy is described as the degree of agreement between a measured value and ------- value.

   A) Most probable B) The true
   C) The actual D) All of these

2. RF value is the ratio of------

   A) Two concentration B) Two distance
   C) Rate of migration D) Either a or b

3. In paper chromatography ------- reagents cannot be used --------

   A) Corrosive B) Sensitive
   C) Colourless D) Either a or b

4. pH range of phenolphthalein indicator to exhibit colour change is--------

   A) 8.3-12 B) 3.1- 4.4
   C) 8.3-10 D)4.2-6.3

:4 from of methyl orange is

ellow

ıess

6. Alkalinity of water is due to……..ions

A) OH^- B) CO_3^{--}

C)HCO_3^- D) All of these

7. pH range of potable water is -------

A) 7.0 to 8.5 B) 4.5 to 8.0

C) 2.0to 4.5 D) 8.0 to 11.5

8. The method used to determine total potassium is---------

A) STPB B) Phosphomolybdate

C) Kjeldahl's D) Urease

Que :-2 Attempt any TWO of the following. **[16]**

1.What are acid –base indicators? Explain Ostwald's Quinonoid theory of indicator?

2.Explain Nitrogen estimated by kjeldahl's method?

3. Explain Thin Layer Chromatography.

Que -3 Attempt any FOUR of the following. **[16]**

1. Write note on Basic terms used in chromatography.
2. Write note on Acid – Base (Neutralization) titration.
3. What is analytical chemistry? Mention its application?
4. Write short note on Salinity of water.
5. Write qualities of good fertilizer.
6. Solve of the following example

There are following seven observations (values) of the analysis. Find the mean and median :44, 49,45,58,37,42,47.

B.Sc. (Part-I) (Semester-II) (NEP)
Examination -2023
CHEMISTRY (Paper-III)
Physical Chemistry
Sub. Code : 90225

Instructions:

1. All Questions are compulsory.
2. Figures to the write indicates full marks.
3. Draw net labelled diagrams whenever necessary.
4. Use of Scientific calculator is allowed.

Day and Date: Monday 5/06/2023 **Total Marks: 40**

Time: 10.30 to 12.30

Que.1) Select the Correct alternative from the following. **(08 marks)**

1) Pressure has no effect on the reactions in which Δn = ...
   a) one
   b) two
   c) three
   d) zero

2) Chemical equilibria are ..... in nature.
   a) dynamic
   b) gases
   c) liquid
   d) solid

3) Entropy of universe tends toward.....
   a) Zero
   b) Maximum
   c) Minimum
   d) None of these

4) ..... gases obey the gas laws at all temperature and pressures.
   a) ideal
   b) non-ideal
   c) real
   d) None of these

5) ..... Of a first order reaction is independent on initial concentration of the reactant.
   a) values
   b) change
   c) unit
   d) none of these

6) Gases which do not obeys gas law at all temperatures and pressures are called .....
   a) ideal gases
   b) non-ideal gases
   c) perfect gases
   d) gases

7) Velocity constant k of second order reaction is expressed in .....

a) mol. $lit.^{-1}s^{-1}$
b) $dm^3.mol^{-1}s^{-1}$
c) $lit^{-1}.mol^{-1}s^{-1}$
d) all of these

8) ..... Of a first order reaction is independent of initial concentration of the reactants.

a) product
b) half life time
c) rate
d) none of these

Que 2) Attempt any two of the following. **(16 Marks)**

1) State first and second law of thermodynamics in different ways.
2) What is second order reaction? Derive the expression $k = \frac{1}{t}\frac{x}{a(a-x)}$
3) What is critical constant of a gas? How are these constants calculated from Van der Waal's constant?

Que 3) Attempt any four of the following. **(16 Marks)**

1) Average velocity.
2) Factors affecting rate of reaction.
3) Pseudo-unimolecular reaction.
4) Explain in brief the law of chemical equilibrium.
5) Physical significance of entropy.