

SUK-KVMW

Set -I

B.Sc. (Part-I) (Semester-II)(CBCS)

Examination June 2022

CHEMISTRY (Paper-IV)

DSC-4B: Analytical Chemistry

. Sub. Code: 72844

Total: 50 mark

Day and Date: Saturday, 18.06.22

Time: 11.00- 1.30

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: [10]

- Determinate errors are associated with -----failure
A) Personal B) Instrumental
C) Both a & b D) Error
- RF value is the ratio of-----
A) Two concentration B) Two distance
C) Rate of migration D) Either a or b
- The number of phases operating in chromatography-----
A) 4 B) 2
C) 3 D) Varies with the type
- Ostwald put forward the theory of acid base indicator in-----
A) 1994 B) 1894
C) 1794 D) 1694
- pH range of methyl red indicator is -----
A) 3.1 to 4.2 B) 6.3 to 7.1
C) 4.2 to 6.3 D) 5.2 to 6.3
- colour of pure water is.....
A) Pale green B) Yellow
C) Colourless D) White
- Conductivity is expressed in-----
A) milimhos B) micromhos
C) mili-siemens D) All of these
- The micronutrients elements in fertilizer include-----
A) Phosphorous B) potassium
C) Nitrogen D) All of these

9. The kjeldhal's method in nitrogen is quantitatively changed to -----
A) Ammonia B) Nitrate
C) Amide D) Thiurea

10. Standard deviation is oftenly used as measure of-----
A) Accuracy B) Mean
C) Precision D) None of these

Que :-2 Attempt any TWO of the following.(10 Marks each).

1. What are acid –base indicators? Explain Ostwald's ionization theory?
2. Explain nitrogen estimated by kjeldhal's method?
3. Explain basic principle of chromatography & basic terms used in chromatography.

Que -3 Attempt any FOUR of the following.(5 Marks each)

1. Write application of TLC.
2. Write types of EDTA titration.
3. What is analytical chemistry? Mention its application?
4. Write short note on Hardness of water.
5. Write qualities of good fertilizer.
6. Solve of the following example

The percentage of constituent A in a compound AB are 22.61, 22.64 , 22.54 and 22.53% calculate the mean deviation and relative deviation.

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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. How many significant figures does each of the 0.004 number?

- A) 3 B) 5
C) 1 D) 2

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

- A) Corrosive B) sensitive
C) Colourless D) Either a or b

4. When a polar solvent system is used in TLC stationary phase is-----

- A) Aqueous B) Is eliminated
C) organic D) Either a or b

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

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

6. phenolphthalein is -----

- A) Weak acid B) Weak organic acid
C) Strong acid D) Weak inorganic acid

7. If $\text{pH} > 8$, water contains-----

- A) Bicarbonates B) Carbonates
C) Carbonic acid D) Silica

8. Turbidity is due to -----particales

- A) Dissolved B) Suspended

- C) Soluble
 D) Remarkable
9. The method is used to determine total potassium is-----
 A) STPB
 B) Phosphomolybdate
- C) Kjeldahl's
 D) Urease
10. The sampling is easy for a lot when it is completely -----
 A) Homogenous
 C) Large size particales
- B) Heterogeneous
 D) both a& b

[20]

Que 2:-Attempt any Two of the following .(10 Marks each).

1. Explain the brief thin layer chromatography?
2. Give structure of Erichrome Black T. Explain its colour change with change of pH?
3. Explain Phosphate estimation by phosphomolybdate method?

[20]

Que 3:-Attempt any FOUR of the following. (5 Marks each)

1. write short note on chemical oxygen demand.
2. write short note on complexometric titration.
3. Define the following :-

- i) Qualitative Analysis
- ii) Quantative Analysis

4. Write short note on 'salinity'.
5. Write types of fertilizers.
6. Solve the following.

There are following seven observation (value) of the analysis. find the mean and median:
 44, 49, 45, 58, 37, 42, 47.

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