SHRI S.H.KELKAR COLLEGE OF ARTS, COMMERCE AND SCIENCE, DEVGAD.
(SINDHUDURG)
S.Y.B.Sc. SEMESTER III EXAMINATION OCTOBER 2023

COURSE: Analytical Chemistry **COURSE CODE – USCH 303**
TIME : 8:30am to 11:00am **MAX. MARKS: 75**
SET 2 **DURATION: 3 HOURS**

N.B. 1.All the questions are compulsory
2. Figures to the right indicates fullmarks
3. The use of log table/Programmable calculators are allowed.
4. Answers for the same question should be written together.

Q. 1) Select the correct option and complete the following statement. **(15)**

1)Refer to analysis in which sample size is ……..
a)More than 100 mg b)10 mg to 100 mg c)Less than 10 mg

2) Determinate errors are also known as.....
a) random b) proportionate error c) systematic error

3) Precision stands for..... of set.
a)Reproducibility b) Authenticity c)Readings

4) Analytical sample is…….
a)Gross sample b) sample subjected to analysis c) increment

5) Higher the range ..... is the precision.
a) lower b) higher c) same

6)Difference between end point and equivalence point is called as…..
a) absolute error b) relative error c)titration error

7) Solution in burette is called as....
a) Titrant b) Titrand c) None of them

8) Succinic acid is used as……standard
a) primary b) secondary c) tertiary

9) Nickel can be precipitate as Ni-DMG in..... medium
a) highly acidic b) near neutral c) moderately alkaline

10)In titration of strong acid against weak base, pH at equivalanence point is….
a) greater than 7 b) less than 7 c) equal to 7

11)Filters are used as monochromators in…..
a) potentiometer b)colorimeter c) spectrophotometer

12) Iodometry is one of the most important_____titration method
a) Neutralization b) Complexometry c) Redox

13) Visible spectrophotometer use radiation in.... region of electromagnetic spectrum

a) 400-750nm b) 180-400nm c)750-950 nm

14) For analysis in UV region, the cuvette should be made up of...

a) glass b) transparent plastic c) quartz

15)Photoemissive cell work on principle of_____effect

a) Photoelectric b) Photosynthesis c) None of them

Q. 2) Attempt any THREE of the following. **(15)**

A) What is an error? How are errors classified in determinate error? (5)

B) Explain chromatography and give any four types of chromatography with their stationary and mobile phase. (5)

C)What are advantages and disadvantages of classical and intrumental method of analysis (5)

D) Calculate precision in terms of mean , median and mode, and average deviation form mean and median for following set of values. 15.64, 15.66 ,15.70,15.72,15.78 (5)

E) What do you understand by term representative sampling?Explain the methods of sampling of liquids. (5)

Q. 3) Attempt any THREE of the following. **(15)**

A) What is titrimetric analysis? List various types of titration, explain any two of them. (5)

B) Explain basic principles of conductometric titration and give details of experimental set(5)

C) 0.6038g of iron ore was dissolved in acid and the iron was reduced to Fe(II)state. Titration required 38.42cm^3 of 0.1073 N potassium dichromate. Calculate percentage of iron in ore sample (5)

D) How will you determine end point of acid base titration potentiometrically (5)

E) Write note on following (i) Co Precipitation (ii) Ostwald's ripening (III) Properties of ideal precipitation agent (5)

Q. 4) Attempt any THREE of the following. **(15)**

A)Define the following terms: (5)

a) radiant power b) absorbance c) transmittance d) wavelength of maximum absorption e) per cent transmittance

B) With help of diagram explain working of photometric tube (5)

C)Draw schematic diagram of single beam photometric. Discuss the instrumentation and it's working. (5)

D) A 2.3×10^{-4} M solution of substance has transmittance of 0.506 when placed in 1cm path length cuvette at wavelength of 525μm. Calculate the (I) absorbance (ii) transmittance, of the concentration is double (5)

E) Describe experimental setup in which photometric titration perform Hydrolysis of alkyl halides b) Hydration of alkene (5)

Q. 5) Attempt any THREE of the following. (15)

A) Explain random sampling and systematic sampling

B) In the aluminium content in bauxite ore, following values were obtained in percentage. Calculate precision in terms of relative average deviation. 60.38, 60.47, 60.58 ,60.35

C) Write note on filtration

D) How is diphenyl amine used as redox indicator

E) Advantage and limitations of photometric titration

F) State and derive mathematical expression for Beer's law

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