F.Y. M.Sc. - I (Chemistry) Second Semester Old

CHE-204 - Analytical Chemistry Paper-VIII

P. Pages : 2 **GUG/W/18/2245**

Time : Three Hours * 1 7 4 2 * Max. Marks : 80

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1. a) Discuss the techniques of sampling of liquids in water and milk samples. **8**

b) Explain the role of noise in the determination of detection limit of analytical techniques. **8**

OR

c) Discuss. **4**
i) Sensitivity.
ii) Limit of quantification.

d) Discuss wet-ashing method for elemental analysis. **4**

e) What are stoichiometric and sub-stoichiometric reaction, explain? **4**

f) Write a note on hazards in sampling. **4**

2. a) Discuss the principle of gas chromatography & Instrumental set up with respect to carrier gas and sampling system. **8**

b) Explain the principle of gel permeation chromatography and give its application. **8**

OR

c) Write factor affecting to the peak resolution and peak broadening. **4**

d) Explain the principle and application of size exclusion chromatography. **4**

e) Write a short note on Detectors in gas chromatography. **4**

f) Write the applications of 'Supercritical fluid chromatography'. **4**

3. a) Describe principle and types of burners in flame photometry. **8**

b) i) Explain the principle of fluorescence and phosphorescence. **8**
ii) Describe Jablonski diagram.

OR

c) Discuss various types of interferences in flame photometry. **4**

d) Explain Fluorescence quenching. **4**

e) How the molecular weight of the polymer is determine by nephelometry. **4**

f) Write a short note on optical sensors. **4**

4. a) Explain principle of DC polarography. Explain various regions of polarogram with proper reasoning. **8**

b) What is the principle behind amperometric titration. Explain nature of graphs obtained by taking various examples. **8**

OR

c) Why maxima appears in polarogram? How it can be removed. **4**

d) Diffusion current constant of Zinc ion in 0.1M KCl Sol is 3.42. What diffusion current in microampere is obtained with a 2×10^{-3}M solution of Zinc using a capillary with a drop time of 3 second and assuming that one drop of Hg weighs 5.0mg. **4**

e) Derive the equation of polarographic wave and half wave potential. **4**

f) How will you determine concentration of unknown metal ion solution by standard addition method by using polarographic technique. **4**

5. a) If 4g of NaOH dissolved in 500ml water. Calculate concentration in PPM (mol. mass NaOH = 40). **2**

b) Define fusion processes method for elemental analysis in organic samples. **2**

c) Describe advantages of Gas chromatography. **2**

d) Write the application HPLC. **2**

e) How fluorescence intensity changes with concentration? **2**

f) Give the principle of nephelometry. **2**

g) Write limitations of polarography. **2**

h) Give the advantages of DME. **2**

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