



BBD-003-1104012

Seat No. _____

M. Sc. (CBCS) (Sem. IV) Examination

July - 2021

Chemistry : C(PA)-404

(Applied Analytical Chemistry) (New Course)

Faculty Code : 003

Subject Code : 1104012

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All questions carry equal marks.
(2) Attempt any five questions out of ten.

1 Answer the following :

- Explain the term solvent extraction and give the type of extract system.
- What are preservatives ? Classify it with examples.
- Give the function of blood.
- Explain the term ore with example.
- Give the chemical constituents of milk and mention the common adulterants of it.
- Calculate the weight of Fe (III) left unextracted from 100 cm^3 of a solution having 200 mg of Fe^{3+} in 6 M HCl after three extraction with 25 cm^3 of ether. $D = 150$.
- Give the parameters determining the green nature of analytical chemistry.

2 Answer the following :

- What is process analytical technology ?
- How will you estimate sodium and potassium in blood sample ?
- Briefly explain microwave enhanced chemistry.
- What is synergistic extraction ? Give its mechanism.
- What are food additives ? Give the purpose of its addition.
- How will you collect blood sample for glucose, CO_2 and HIV test from infected patients ?
- What is an alloy ? Why alloys are used ?

- 3 Answer the following :
- (a) How will you analyze acid insoluble residue calcium oxide and magnesium oxide content in dolomite ore ?
 - (b) How will you analyze copper and zinc content in brass alloy ?
- 4 Answer the following :
- (a) How will you extract and analyze benzoic acid in the presence of saccharin in ready to serve beverages ?
 - (b) Give the extraction, qualitative and titrimetric method for detection of benzoic acid present in beverages and liquid products.
- 5 Answer the following :
- (a) What is the primary goal of PAT ? How PAT works ?
 - (b) Give the benefits of PAT for regulated industry.
- 6 Answer the following :
- (a) Discuss techniques for solvent extraction in detail.
 - (b) How will you analyze serum calcium in blood sample ?
- 7 Answer the following :
- (a) Write note on green media used in analytical laboratories.
 - (b) Describe green methodology in analytical chemistry.
- 8 Answer the following :
- (a) Describe the partition theory of solvent extraction.
 - (b) Explain solvent extraction by macromolecules in detail.
- 9 Answer the following :
- (a) How will you analyze tin and lead content in solder alloy.
 - (b) How will you analyze sulphur-dioxide as preservative in food products ?
- 10 Answer the following :
- (a) How will you analyze chloride in blood sample ?
 - (b) How will you estimate blood urea in blood sample ?
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