



NBX-003-010417

Seat No. _____

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

April / May – 2017

C(PA)-404 : Pharmaceutical & Industrial Analysis

(Elective-1) (New Course)

Faculty Code : 003

Subject Code : 010417

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

[Total Marks : 70

Instructions :

- (1) All questions are compulsory.
- (2) All questions carry equal marks.

1 Answer the following : (any seven) 14

- (a) Define : Solvent extraction, distribution ratio and separation factor.
- (b) What are food preservatives ? Classify them and give list of method for its determination.
- (c) Give the difference between gram –ve and +ve bacteria and list the name of microorganisms.
- (d) Give chemical constituents of milk. Give the name of common adulterants found in milk. How will you detect any three of them ?
- (e) Define and classify fertilizer. How will you analyze potassium in fertilizers ?
- (f) What are crown ethers ? Classify them and explain their usefulness in extraction of metal ions.
- (g) Briefly discuss the limit test for chloride with chemical reaction.
- (h) Give the principle of analysis of D.D.T.
- (i) Define saponification value and iodine value. Give their analytical importance.
- (j) Define pesticides and classify them in general.

2 Answer the following : (any **three**) **14**

- (a) Explain Organophosphorous pesticides with their characteristics. Classify them and give the analytical principle of malathion.
- (b) What are practiced formulations ? Mention formulation of solid and liquid pesticide.
- (c) Give the monograph of paracetamol in detail.
- (d) What are limit tests ? Why they are necessary ? Give the limit test of iron.

3 Answer the following : **14**

- (a) Describe the mechanism of extraction in detail for extraction by solvation.
 - (i) Ion pair formation
 - (ii) Solution method.
- (b) (i) Derive an equation for percentage extraction.
 - (ii) Alkaloid may be removed from an aqueous solution by contact with ether. The distribution coefficient is about 10. If you had an aqueous solution containing 2.5 mg of alkaloid then (I) How much could be extracted with an equal volume of ether ? (II) and what percentage of alkaloid could be extracted by dividing the ether volume into four equal portions and extracting four times instead of once ?

OR

- 3** (a) Give the classification of extraction system. Discuss in detail the mechanism of extraction by compound formation with suitable example.
- (b) (i) Derive an equation for n^{th} extraction.
 - (ii) Iodine may be extracted from an aqueous solution into various organic solvents. The distribution coefficient for extraction by CCl_4 is 85. If 50.0 ml of an aqueous solution containing 2.0×10^{-20} mmol of I_2 is contacted with 30.0 ml of CCl_4 . Calculate the amount of I_2 in the aqueous phase and amount in the CCl_4 .

- 4 Answer the following : (any two) 14
- (a) What are aflatoxins ? How will you detect and estimate in groundnuts products ?
 - (b) What is quinine ? How will you identify in soft drink and tonic water ? Give the qualitative test for alginate in chocolate, ice-cream and frozen product.
 - (c) What are food additives ? Classify them. Give the qualitative and titrimetric method for detection of benzoic acid present in beverages and liquid products.
- 5 Answer the following : (any two) 14
- (a) How will you analyse total phosphorous and total nitrogen in DAP fertilizer ?
 - (b) Explain microorganism. Briefly discuss the spread plate method and streak plate method for bacteria.
 - (c) Give the analytical principle of endosulphan, and aldrin. Discuss in detail the analytical procedure for endosulphan.
 - (d) Describe complete monograph of morphine sulphate.
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