Analytical chemistry.

IV

Q.P. Code :05434

[Time: 2½ Hours]   [Marks : 60]

Please check whether you have got the right question paper.

N.B: 1.   All questions are compulsory.
2.   Use of non programable calculator is allowed.
3.   Figures to right indicate full marks.

Q.1. (a) Attempt any two of the following.   08

(i)   Give the physiological role of iron and phosphorus in human diet.

(ii) Describe the different types of leucocytes with a special emphasis on their role.

(iii) Explain the principle for estimation of glucose in blood.Add a note on the physiological significance of it.

(iv) Name the abnormal constituents of urine. How does it help in diagnosis of disease?

(b) Give a method for the analysis of bile pigments in serum.   04

OR

(b) Explain the method for microbiological assay of cyanocobalamine.   04

Q.2. (a) Attempt any two of the following.   08

(i)   Explain the terms:- antigen and antibody. Add a note on the significance of it.

(ii) Discuss the method for quantitative estimation of lipids.

(iii) What are carbohydrates? How are they classified?

(iv) Describe the radio-immuno assay technique.

(b) Explain the analytical method for estimation of proteins.   04

OR

(b) Write a note on the principle and technique of ELISA.   04

Q.3. (a) Attempt any two of the following.   08

(i)   Discuss the use of Bomb's Calorimeter in food Analysis.

(ii) What is pasteurization? Give the applications of it.

(iii) Explain the term 'Food processing'. Give the similarities and differences between processing and preservation.

(iv) How do the FSSAI and AGMARK control the food standards in India?

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(b) Write a note on Packaging of oils. 04

OR

(b) List the factors which cause food deterioration. Explain any one factor in detail. 04

Q.4. (a) Attempt **any two** of the following. 08

(i) Give composition of milk. How is milk fat estimated?

(ii) What is peroxide value of an oil? How is it estimated?

(iii) Explain the Lowenthal's method for estimation of Tannin in tea.

(iv) How will you analyze pesticide residue from food sample?

(b) 9.945 gm of honey sample was dissolved in warm water and the solution was diluted to $250 \ cm^3$ with distilled water. To $10.0 \ cm^3$ of this solution, $25.0 \ cm3$ of $0.1 \ N \ I_2$ solution was added and titrated against $0.14 \ N \ Na_2 \ S_2O_3$. Titre value obtained was $11.5 \ cm^3$. $25.0 \ cm3$ of $0.1 \ N \ I_2$ solution required $22.5 \ cm^3$ of $0.11 \ N \ Na_2 \ S_2O_3$. Calculate the percentage of glucose in honey sample (atomic wt.of glucose = 180) 04

OR

(b) Give the constituents of coffee. How is caffeine estimated? 04

Q.5. Attempt **any four** of the following. 12

(a) Name the fat soluble vitamins. Give the function of vitamin A & E.

(b) Give the method for estimation of serum creatinine.

(c) Describe the spectrophotometric method for estimation of enzymes.

(d) Explain active and passive immunity with help of proper examples.

(e) Write a note on FDA.

(f) What are biodegradable packaging materials? Give their advantages.

(g) Describe the method for estimation of calcium in wheat flour.

(h) List different chemical preservatives used in food. How is sodium benzoate estimated from food?

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