[Time: 2 ½ Hours] **[Marks:60]**

Please check whether you have got the right question paper.

N.B: 1) All questions are compulsory.
2) Figures to the right indicate maximum marks.

Q.1 A) Attempt **any two** of the following: **(8)**

i) Name the abnormal constituents of urine and comment on anyone abnormal constituent with reference to diagnosis of disease.
ii) Give the physiological role of sodium and potassium in the human diet.
iii) Describe the method of detection of creatinine in blood.
iv) Explain the microbiological assay of Niacin or Niacinamide.

B) Name the fat soluble vitamins. Give their nutritional significance. **(4)**

OR

B) Explain the principle and procedure for the estimation of glucose in blood. **(4)**

Q.2 A) Attempt **any two** of the following: **(8)**

i) Describe the main features of antigen antibody interactions.
ii) Explain the fluoro- immuno assay technique.
iii) Discuss anyone method for estimation of enzyme.
iv) Give the analytical method for estimation of proteins

B) Describe the method used in the quantitative estimation of lipids. **(4)**

OR

B) Write a note on the principles and applications of ELISA. **(4)**

Q.3 A) Attempt **any two** of the following: **(8)**

i) What is fuel value of food? How is it estimated?
ii) Outline the methods used for food processing and preservation.
iii) Write a note on colouring matter used in food and their identification.
iv) Discuss the tests used for the detection of trace metals as contaminants and explain anyone in detail.

B) Write a note on veterinary drug residues in food. **(4)**

OR

B) What are the toxicants formed during food processing? Explain giving examples. **(4)**

Q.4 A) Attempt **any two** of the following: **(8)**

i) Write a note on classification of packaging materials.
ii) What is iodine value of oil? How is it estimated?
iii) Explain the method used in estimation of protein in milk.
iv) How will you determine rancidity in oils/fats?

B) In the determination of Iodine value of oil, 0.8 g of oil required 30.7 cm^3 of 0.11 N $Na_2S_2O_3$. A blank titration using the same $Na_2S_2O_3$ gave a value of36.8 cm^3 Calculate the iodine value of the oil sample. (Atomic weight of Iodine = 127) **(4)**

OR

B) What are the volatile oils and fixed oils? Explain giving examples **(4)**

Q.5 Attempt **any four** of the following: **(12)**

i) Explain the nutritional significance of Calcium and Phosphorus.
ii) Describe any one method for the estimation of Vitamin C
iii) What are carbohydrates? How are they classified?
iv) Write a short note on Radio immuno assay.
v) How is melamine contamination in milk detected?
vi) What are 'Fortifying agents'? Explain giving examples.
vii) Give the objectives of food packaging.
viii) Write a note on 'Adulterants in Milk. '

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