[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) What are the abnormal constituents observed in blood? Explain their significance in diagnosis of diseases.
ii) Discuss the role of Iron and Phosphorus in the human diet.
iii) Explain the principle and procedure for estimation of bilirubin in urine.
iv) Give the nutritional significance of any two fat soluble vitamins.

B) Explain the method used for the microbiological assay of Cyanocobalamine. **(4)**

OR

B) What is the function of Vitamin C in human physiology? **(4)**

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

i) Explain antigen-antibody interaction with respect to agglutination reactions.
ii) What is radio immuno assay?
iii) Explain the biological significance of enzymes.
iv) What are amino acids? Describe their classification.

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

OR

B) What is ELISA? Explain its principle and applications. **(4)**

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

i) Explain the use of Bomb's calorimeter in determination of fuel value of food.
ii) Compare and contrast 'Food Processing' and 'Food Preservation'.
iii) Describe the method used for analysis of any two flavoring agents present in food products.
iv) Write a note on Industrial contaminants.

B) Describe the method used for detection and estimation of veterinary drug residues as food contaminant. **(4)**

OR

(B) What are 'Food Additives'? Explain giving examples. **(4)**

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

i) What are biodegradable packing materials? Give their advantages.
ii) What is iodine value of oil? How is it estimated?
iii) Write a note on 'Adulterants in Milk.'
iv) How will you determine rancidity in oils/fats?

B) In the determination of Iodine value of oil, 0.7 g of oil required 26.3 cm^3 of 0.12 N $Na_2S_2O_3$. A blank titration using the same $Na_2S_2O_3$ gave a value of 30.8 cm^3 Calculate the iodine value of the oil sample. (Atomic weight of Iodine = 127) **(4)**

OR

B) How are the fixed oils in spices determined? **(4)**

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

i) How are ketone bodies in urine estimated?
ii) Explain the nutritional significance of any two water soluble vitamins.
iii) What are carbohydrates? How are they classified?
iv) Outline the sources of proteins and explain its role in body building.
v) How is melamine contamination detected?
vi) Write a note on Food Nutrients.
vii) What are the objectives of food packaging?
viii) Explain 'bacteriological quality of milk.'

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