Duration: $2^{1/2}$ Hour **Max Marks: 60**

N.B: 1. All question carry equal marks.
2. Figures to the right indicate full marks.
3. Use of non-programmable calculator is allowed.

Q.1 **A.** Attempt **any TWO** of the following: **(08)**
i. What is uric acid? Write a note on determine uric acid in blood.
ii. Name the abnormal constituent of urine and comment on anyone abnormal constituent with reference to diagnosis of disease?
iii. Write a note on estimation of bilirubin in urine sample.
iv. Describe any one method for estimation of vitamin C.

B. Attempt **any ONE** of the following: **(04)**
i. Write a note on microbiological assay of vitamins.
ii. Discuss the role of Iron and Phosphorus in human diet.

Q.2 **A.** Attempt **any TWO** of the following: **(08)**
i. Give the classification of antibodies.
ii. Write a note on advantages and disadvantages radioimmunoassay.
iii. What are carbohydrates? Give any one method of estimation of carbohydrates.
iv. What are amino acids? Give its classification.

B. Attempt **any ONE** of the following: **(04)**
i. What is ELISA? Write a note on its types.
ii. What are Enzymes? Explain the biological significance of enzyme.

Q.3 **A.** Attempt **any TWO** of the following: **(08)**
i. Explain the construction and working of Bomb Calorimeter.
ii. Explain the use of any two chemical preservatives.
iii. What are food contaminants? Explain the types of food contaminants.
iv. How is melamine contamination detected?

B. Attempt **any ONE** of the following: **(04)**
i. Write a note on: toxic trace metal residues in food.
ii. What are fortifying agents? Give examples.

Q.4 **A.** Attempt **any TWO** of the following: **(08)**

i. Give advantages and disadvantages of biodegradable packaging material.

ii. Explain processing of vegetables and fruits.

iii. Write a note on adulterants in the milk.

iv. 0.95 g of oil sample requires 16.3 ml of 0.006N KOH. If blank reading is 11.3 ml of 0.006N KOH. Calculate the acid value oil. (Molecular weight of KOH =56.1)

B Attempt **any ONE** of the following: **(04)**

i. What is rancidity? How will you determine the rancidity of oil ?

ii. What are essential oils in cinnamon? Write a note on estimation of cinnamaldehyde in cinnamon.

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

a. What are the functions of vitamin K in human physiology?

b. Explain the Biuret method for estimation of protein.

c. Explain active and passive immunity and give its significance

d. With the help of proper example explain epitope and paratope.

e. Describe the determination of Chloramphenicol.

f. Explain benzoic acid as chemical preservative.

g. How is fat content in the milk are estimated?

h. How will you determine iodine value of fat?

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