

2019

B.Sc.

3rd Semester Examination

PHYSIOLOGY (Honours)

Paper - SEC 1-T

Full Marks : 40

Time : 2 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Detection of Food Additives / Adulterants

1. Answer any *five* questions from the following :

5×2=10

- (a) Differentiate between food adulterant and food additive. 2
- (b) What is metanil yellow ? How can it be detected ? 2
- (c) Differentiate between margarine and butter. 2
- (d) Give two health defects of dioxin and PCB. 2

[Turn Over]

- (e) Name the adulterants used in coffee and chocolate. 2
- (f) What are heavy metals ? Give examples. 2
- (g) What are artificial sweetners ? Give example. 2
- (h) Name the adulterants used in noodles. How does it affect health? 1+1

2. Answer any *four* questions from the following :

4×5=20

- (a) Discuss the effects of arsenic toxicity in the physiological system. What is the normal permissible range of arsenic in underground water. 4+1
- (b) How can you chemically distinguish metanil yellow and rhodamin B from food sample? $2\frac{1}{2}+2\frac{1}{2}$
- (c) How can you detect presence of chicory in coffee ? What are its health effects ? 3+2
- (d) Name the common food adulterant present in chinese food noodles. What are its physiological effects? 1+4

(e) Where do you find bisphenol A and S ? Why are they considered food adulterants. Give one difference between them? 1+3+1

(f) Give the full form of PCB. How can you detect the presence of PCB in food substance ? Give example of some food items where it is used as adulterant. 1+3+1

3. Answer any *one* question from the following :

$1 \times 10 = 10$

(a) What are the permissible limits of lead and Mercury ? How can you detect its presence in food item chemically ? State the health effects caused by above metalloid and heavy metal.

2+3+5

(b) Enumerate the chemical tests for identifying

(i) margarine, (ii) monosodium glutamate and (iii) Brown HT from food stuff. 2+2+2

What are carcinogen ? Give some food adulterants that act as carcinogen and state the type of cancer caused by carcinogen. 4

[Turn Over]

Clinical Biochemistry

1. Answer any *five* questions from the following :

2×5=10

- (a) Why sodium fluoride is used as anticoagulant in samples used to detect blood glucose concentration ? 2
- (b) Write the clinical significance of measuring albumin-globulin ratio. 2
- (c) What do you mean by hyperglycemia and glucosuria ? 2
- (d) State the role of iodine in detection of amylase activity. 2
- (e) Define salting in and salting out technique of protein precipitation. 2
- (f) Distinguish between organic and inorganic phosphate. 2
- (g) State the importance of using multiple standards in calculating concentration of unknown. 2
- (h) Define Beer-Lambert Law. 2

2. Answer any *four* questions from the following :

4×5=20

- (a) What principle is employed in the detection of blood glucose by Nelson-Somogyi method? What is the role of zinc sulphate and barium hydroxide in Nelson-Somogyi method of blood glucose estimation? 3+2
- (b) State the pathophysiological importance of detection of serum amylase. Why starch instead of cellulose is the substrate for serum amylase ? 3+2
- (c) Schematically write down the steps of estimation of serum protein by Biuret method. Why alkaline copper sulphate and not simple aqueous copper sulphate is used as biuret reagent ? 3+2
- (d) What is transmittance ? What do you mean by hypo and hyperphosphatemia ? State few clinical situations that lead to such condition. 1+(1+1)+2
- (e) Why monochromatic filters are used in colorimeter ? How can you obtain monochromatic light from white light in a colorimeter ? 2½+2½

[Turn Over]

3. Answer any *one* question from the following :

1×10=10

(a) Write down the principle for estimation of inorganic phosphate. State the role of TCA, 2/3(N) H₂SO₄ and sodium tungstate in blood biochemistry. Define anticoagulant. 5+3+2

(b) Why incubation is necessary in the estimation of serum amylase activity ? State the role of arsenomolybdate reagent in blood glucose estimation. State the normal range of serum amylase. State the functions of serum globulin.

3+3+1+3
