

2023

Time - 3 hours

Full Marks - 60

*Answer **all groups** as per instructions.*

Figures in the right hand margin indicate marks.

Draw labelled diagrams wherever necessary.

GROUP - A

1. Fill in the blanks. (all) [1 × 8]
- (a) The cuticle of the finger nail is called _____.
 - (b) Colour of skin is due to _____.
 - (c) Aquatic fish use a set of respiratory organs known as _____.
 - (d) Amphioxus has _____ pair of aortic arches.
 - (e) Systemic arch is present on _____ side in mammals.
 - (f) Receptors which respond chemical stimulation is called _____.
 - (g) 10th Cranial Nerve is called as _____.
 - (h) Embryos of all vertebrates have _____ type of kidneys.

[2]

GROUP - B

2. Write notes on any eight of the following within two or three sentences each. [1½ × 8

- (a) Acetabulum
- (b) Axial Skeleton
- (c) Foramen of Monro
- (d) Double circulation
- (e) Chief cells
- (f) Cerebrum
- (g) Islets of Langerhans
- (h) Duplex type of Uterus
- (i) Contour Feather
- (j) Mesonephros Kidney

GROUP - C

3. Answer any eight of the following within 75 words each. [2 × 8

- (a) What are proprio-receptors ?
- (b) Functions of Sebaceous glands.

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- (c) What are the types of feathers and their functions in birds ?
- (d) Dentition in mammals
- (e) Differentiate between Placoid and Cycloid scale.
- (f) Differentiate between Chemoreceptor and Mechano receptor.
- (g) Functions of swim bladder
- (h) What are the parts of metanephros kidney ?
- (i) Name the cranial nerves in vertebrate.
- (j) Note on coronary sinus

GROUP - D

4. Answer any four questions within 500 words each.

- (a) Explain different types of integuments and their functions in vertebrates. [6]
- (b) Compare the alimentary canal and its associated gland in vertebrates. [6]
- (c) Discuss the types of Jaw suspensorium. [6]
- (d) Discuss the general plan of circulation in vertebrates. [6]

[4]

- (e) Compare the Aortic arches in fishes, amphibia and mammals. [6]
- (f) Compare the brain of mammal with that of a reptile. [6]
- (g) Describe the accessory respiratory organs in fishes. [6]

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GROUP - A

1. Fill in the blanks. (all)

[1 × 8]

- (a) _____ glands secrete succus entericus.
- (b) The enzymes which digest proteins are called _____.
- (c) The _____ system transports oxygen directly from the outside to the tissues.
- (d) Carbon dioxide is mostly carried in blood in the form of _____.
- (e) _____ is called the blood bank of our body.
- (f) _____ is called the first pacemaker of the heart.
- (g) Formation of RBCs in the bone marrow is called _____.
- (h) _____ vein carries oxygenated blood from lungs to the heart.

[2]

GROUP - B

2. Write notes on any eight of the following within two or three sentences each. [1½ × 8

- (a) Leucocytes
- (b) Larynx
- (c) Gastro intestinal tract
- (d) Tubular secretion
- (e) Salivary gland
- (f) Sphygmomanometer
- (g) Vitamin K
- (h) Bohr effect
- (i) Malpighian body
- (j) Alveoli

GROUP - C

3. Write notes on any eight of the following within 75 words each. [2 × 8

- (a) Pacemaker

- (b) Gall bladder
- (c) Hamburger phenomena
- (d) Cutaneous Respiration
- (e) Haemocytometer
- (f) Composition of Blood
- (g) Lung capacities
- (h) Bile Pigments
- (i) Haemoglobin
- (j) Digestion of fat

GROUP - D

4. Answer any four questions within 500 words each.

- (a) Give an account on chemical digestion of carbohydrate food. [6]
- (b) What is Blood Pressure ? Describe its regulation. [6]
- (c) Describe the intrinsic and extrinsic pathway of clotting of blood. [6]
- (d) Describe the mechanism of Urine formation. [6]
- (e) Describe the Transport of Oxygen (O_2) in blood. [6]

[4]

- (f) What is double circulation ? Explain it with reference to the heart of man. [6]
- (g) Give an account of Regulation of Acid-Base balance in urinary tubule. [6]

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GROUP - A

1. Answer all questions and fill in the blanks as required. [1 × 8]
- (a) Who discovered the Pathway of Glycolysis ?
- (b) What is regarded as the mobile electron carrier in mitochondrial electron transport system ?
- (c) Name the biochemical process of metabolism where simple molecules combined to generate compound molecules.
- (d) _____ enzyme builds glycogen by linking together glucose molecules.
- (e) How many ATPs generated from complete oxidation of Palmitic Acid ?
- (f) _____ is the process of synthesis of glycogen from glucose.

[2]

- (g) Ketone bodies are normally produced in _____.
- (h) Arginine is converted to ornithine with removal of Urea by _____.
- (i) _____ is the process of transfer of the amino group from an amino acid to an keto acid.

GROUP - B

2. Answer any eight of the following within two or three sentences each. [1½ × 8

- (a) What is gluconeogenesis ?
- (b) What is the fate of pyruvate in anaerobic respiration ?
- (c) What is thermogenesis ?
- (d) What is intermediary metabolism ?
- (e) Name two glucogenic aminoacids.
- (f) Give three examples of cofactors.
- (g) What is Ketosis ?
- (h) Differentiate between complex I and complex II of F₁ particles.
- (i) Name three inhibitors of respiratory chain.
- (j) What do you mean by phosphorylation ?

[3]

GROUP - C

3. Write notes on any eight of the following within 75 words each.

[2 × 8

- (a) Importance of Redox action
- (b) Transamination
- (c) ATP synthase
- (d) Cori cycle
- (e) Carnitine shuttle system
- (f) Inhibitors of citric acid cycle
- (g) Ketone bodies
- (h) Malate-Aspartate shuttle
- (i) Uncouplers
- (j) Metabolic fate of Asparagine and Aspartate.

GROUP - D

4. Answer any four questions within 500 words each.

- (a) Describe the mechanism and regulation of Glycerol-3 Phosphate shuttle. [6

[4]

(b) Write notes on :

[3 × 2

(i) Cofactors

(ii) Stages of Catabolism

(c) Describe the process of Citric Acid cycle.

[6

(d) Give an account of Glycogenesis.

[6

(e) Discuss briefly on Urea cycle.

[6

(f) Explain beta oxidation of Palmitic Acid.

[6

(g) Give an account of inhibitors and uncouplers of Electron Transport System.

[6

(h) Give an account of mitochondrial respiratory chain.

[6

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GROUP - A

1. Fill in the blanks. (all)

[1 × 8

- (a) Chemical name of vit D is _____.
- (b) _____ vitamin is essential for blood coagulation.
- (c) _____ organism causes 'Amoebiasis'.
- (d) Poliomyelitis caused due to _____ infection.
- (e) _____ test is used for the diagnosis of Typhoid fever.
- (f) Ascaris lives in _____ part of man.
- (g) Deficiency of Iodine causes _____ disease.
- (h) In hepatitis, _____ part of the body is mostly affected.

[2]

GROUP - B

2. Answer any eight of the following within two or three sentences each. [1½ × 8

- (a) What do you mean by balanced diet ?
- (b) What are polysaccharides ?
- (c) Write down the biological function of zinc.
- (d) Write the symptoms of Taeniasis.
- (e) Prevention of Marasmus
- (f) Write down the harmful effects of smoking.
- (g) Dietary modification of hypertension
- (h) Non-essential aminoacids
- (i) Causes of cold and cough
- (j) What is Giardiasis ?

GROUP - C

3. Answer any eight of the following within 75 words each. [2 × 8

- (a) Vit. A deficiency – their causes and treatment.
- (b) Diabetes mellitus – their causes and prevention.

[3]

- (c) Drug dependence
- (d) Classification of lipid
- (e) Phosphors and its biological function
- (f) Fever – causes and treatment
- (g) Source of infection, symptoms and prevention of Ascariasis
- (h) Water-borne infections
- (i) Dietary source of protein and their properties
- (j) Definition and concept of health.

GROUP - D

4. Answer any four questions within 500 words each.

- (a) Describe the needs and dietary pattern of nutrients in any four age groups studied by you. [6]
- (b) Describe in details about water soluble vitamins and their importance. [6]
- (c) What do you mean by protein-energy malnutrition ? Write down the causes, symptom and dietary modification of Kwashiorkor. [6]
- (d) Discuss about the causes of obesity and to combat it with dietary and life style modification. [6]

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[4]

- (e) Discuss AIDS and its prevention. [6]
- (f) What is potable water ? Write down its sources and methods of purification. [6]
- (g) Write down the causes of food spoilage and their preventive measures. [6]