

2015

ZOOLOGY

(Major)

Paper : 5.1

(Animal Physiology)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer/Choose the correct answer
any seven from the following : $1 \times 7 = 7$
- (a) What is pacemaker?
 - (b) Define all or none response phenomenon of nerve fibre.
 - (c) Mention the name of the blood clotting factor which is known as anti-haemophilic factor.
 - (d) State the contents of gallbladder in man.
 - (e) Define heartbeat.

- (f) Which statement is correct?
- (i) All arteries carry oxygenated blood
 - (ii) All veins carry oxygenated blood
 - (iii) All arteries except pulmonary artery carry oxygenated blood
 - (iv) All veins except pulmonary vein carry oxygenated blood
- (g) The plasma of a person in group 'O' contains antibody
- (i) α
 - (ii) β
 - (iii) α and β
 - (iv) Neither α nor β
- (h) The oxyntic glands secrete
- (i) pepsin
 - (ii) mucus
 - (iii) water
 - (iv) acid
- (i) Kwashiorkor is caused by deficiency of
- (i) carbohydrates
 - (ii) proteins
 - (iii) fats
 - (iv) vitamins

- (j) The human heart is
- (i) neurogenic
 - (ii) pulsating
 - (iii) myogenic
 - (iv) None of the above

2. Answer any *four* questions from the following : 2×4=8

- (a) Differentiate between resting potential and action potential.
- (b) Differentiate between pulmonary circulation and systemic circulation.
- (c) Differentiate between isometric contraction and isotonic contraction.
- (d) Differentiate between skeletal muscle and cardiac muscle.
- (e) Differentiate between uricotelic excretion and ureotelic excretion.
- (f) Differentiate between blood and lymph.
- (g) Differentiate between essential and non-essential amino acids.
- (h) Compare between the neuro-neuronal synapse and neuro-muscular synapse.

3. Answer any *three* questions from the following : 5×3=15

- (a) How does homoiosmotic animal regulate osmotic concentration? 5
- (b) Discuss about the renin-angiotensin-aldosteron system in vertebrate. 5
- (c) Briefly describe the structure and functions of liver. 3+2=5
- (d) Describe how interchange of gases occurs during external respiration. 5
- (e) Define erythropoiesis. Where does it occur? What measures need to be taken before blood transfusion? 1½+1½+2=5
- (f) State the name of the fat-soluble vitamins. Discuss the clinical effects of the deficiencies of each of these vitamins. 1+4=5

4. Give a detailed account of the cellular contents of blood. Briefly describe the functions of platelet. 8+2=10

Or

Describe the functional architecture of skeletal muscle with diagram. Discuss the sliding filament theory of muscle contraction.

5+5=10

(5)

5. What is metabolic water? Discuss in detail about the role of kidney in regulating water balance. Mention the role of ADH in water regulation process. $1\frac{1}{2}+6+2\frac{1}{2}=10$

Or

Mention the role of 'chloride-secreting cells' in the gills of marine teleost. Give a brief account of osmoregulation in terrestrial animals. $2+8=10$

6. Give a brief idea of nerve fibres. How does acetylcholine remove from the synaptic cleft after nerve impulse is over? Briefly describe the saltatory propagation of nerve impulse. $3+2+5=10$

Or

Draw a well-labelled diagram of uriniferous tubule. State its different parts. How does filtration of blood occur in the nephron? $2\frac{1}{2}+1\frac{1}{2}+6=10$

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