

(7 pages)

Reg. No. : .....

Code No. : 6430

Sub. Code : HZOM 32

M.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2014.

Third Semester

Zoology

ANIMAL PHYSIOLOGY

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The mammalian respiratory system is characterized by all of the following except
  - (a) alveoli
  - (b) lamellae
  - (c) air capillaries
  - (d) bronchi and cross current flow between air and blood
2. Which of the following statements about kidney structure and function are true?
  - (a) ultrafiltration is important for reclaiming ions and other molecules during the process of urine formation
  - (b) active transport is involved in removing unwanted molecules from the body by transferring them into the nephron
  - (c) active transport is involved in reclaiming desired molecules from the ultrafiltrate by transferring them out of the nephron
  - (d) all are true
3. Which of the following statements about poikilotherms are true?
  - (a) Their body temperature is always the same as temperature of their environment
  - (b) They cannot tolerate more than 2–3 variation in core body temperature
  - (c) Many species survive freezing intracellular fluid
  - (d) None of the above
4. How homeotherms respond to acute decrease in temperature?
  - (a) Metabolic rate of body temperature
  - (b) Body temperature
  - (c) Affinity of respiratory pigments
  - (d) Rate of heat loss





5. Structural division of right and left sides of vertebrate heart is
- (a) required to prevent mixing of arterial and venous blood
  - (b) required to prevent mixing of oxygenated and deoxygenated blood
  - (c) required to maintain different pressures in the arterial and venous systems
  - (d) maintain different pressures in pulmonary and systemic circuits
6. In order to perform good environmental conditions in assimilation, organisms held to
- (a) change in temperature
  - (b) change in cell membrane in cold temperature
  - (c) less fluid on warm temperature
  - (d) all the above
7. Vertebrate Fast-twitch glycolytic (FG) fibres can be distinguished from vertebrate slow-twitched oxidative (SO) fibres because FG fibres are
- (a) have small diameter
  - (b) possess lower volume of mitochondria
  - (c) have fewer and membranes conduct action potential
  - (d) require extracellular calcium for contraction

8. Which of the following synapses with skeletal muscles?
- (a) cerebellum
  - (b) medulla and afferent nervous system
  - (c) somatic nervous system
  - (d) autonomic nervous system
9. Which of the following involves channel proteins?
- (a) secondary active transport
  - (b) primary active transport
  - (c) active transport
  - (d) simple and facilitated diffusion
10. The internal environment of body consists of
- (a) intracellular fluid
  - (b) interstitial fluid
  - (c) serum or plasma
  - (d) any two of the above

**PART B — (5 × 5 = 25 marks)**

Answer ALL questions, choosing either (a) or (b), each answer should not exceed 250 words.

11. (a) Explain chemical changes occurs during muscular contraction.
- Or
- (b) Describe the ultrastructure of skeletal muscles.





12. (a) Explain myogenic and neurigenic hearts.

Or

- (b) Comment on external and internal respiration.

13. (a) Explain the concept of ionic regulation in freshwater animals.

Or

- (b) Explain the process involved during urine formation.

14. (a) Describe assimilation.

Or

- (b) Explain how poikilotherms would respond to prolonged cold exposure on seasonal basis.

15. (a) Describe endocrine responses in homeotherms.

Or

- (b) Classify the animals based on their excretory products and explain.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b), each answer should not exceed 600 words.

16. (a) Describe the hormones of pineal gland, parathyroid, adrenal of pancreas in mammals.

Or

- (b) Comment on the relationship between hypothalamus and pituitary gland in mammalian system.

17. (a) Explain oxygen consumption in fresh and marine water animals.

Or

- (b) Describe the process whereby receptor translates a physical stimulus into a biological signal.

18. (a) Describe the transport of oxygen and formation of oxyhaemoglobin and affinity of hemoglobin for oxygen in vertebrates.

Or

- (b) Compare the adrenal medulla and cortex in terms of structure, hormones and physiological roles in humans.

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19. (a) Describe the endocrine control of vertebrates reproduction and describe the transport of  $\text{CO}_2$  in blood of vertebrates.

Or

- (b) Describe in detail on neuroendocrine control mechanism in homeotherms.

20. (a) Describe excitability and transmission of impulse in muscles.

Or

- (b) Elucidate on gastric hormones and its reflexes in digestive control in human.
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