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3 (Sem–4/CBCS) ZOO HC 1

2021

ZOOLOGY

(Honours)

Paper : ZOO–HC–4016

(Comparative Anatomy of Vertebrates)

Full Marks : 60

Time : Three hours

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

1. Choose the correct option : $1 \times 5 = 5$

(a) Skin in vertebrate consists of

(i) Epidermis

(ii) Dermis

(iii) Both of these

(iv) None of these

Contd.

- (b) The pectoral girdle consists of the
- (i) Clavicle and sternum
 - (ii) Sternum and scapula
 - (iii) Clavicle and scapula
 - (iv) Clavicle and coccyx
- (c) Most of the fat digestion occurs in
- (i) Rectum
 - (ii) Stomach
 - (iii) Duodenum
 - (iv) Small intestine
- (d) Ciliated cells are found in
- (i) Bronchus
 - (ii) Pancreas
 - (iii) Liver
 - (iv) Uterus
- (e) Brain and spinal cord are collectively known as
- (i) Neurons
 - (ii) Schwann cells
 - (iii) Nervous system
 - (iv) Nerves

2. Differentiate between the following :

2×5=10

- (i) Brain and spinal cord
- (ii) Gills and lungs
- (iii) Visual and auditory receptors
- (iv) Afferent arteriole and efferent arteriole
- (v) Axial and appendicular skeleton.

3. Answer **any three** of the following questions :

5×3=15

- (i) Give a brief account of visual receptors in man.
- (ii) Write a short note on the evolution of urinogenital ducts in vertebrates.
- (iii) Accessory respiratory organs in fishes.
- (iv) Structure of autonomic nervous system.
- (v) Types of dentitions in mammals.

4. Answer **any three** questions from the following : 10×3=30
- (a) Cells of the epidermis derive from stem cells of the stratum basale. Describe how the cells change as they become integrated into the different layers of the epidermis. 10
- (b) Describe three skeletal adaptations that allow flight in birds. Explain how would the chest structure differ between ostriches and penguins. 5+5=10
- (c) How are mammalian lungs well adapted for exchange of gases by diffusion ? List *three* specific features and briefly note what each does to enhance diffusion across the respiratory surface. 4+3+3=10
- (d) Ruminants, such as goat, are able to digest large amounts of plant material. Explain how plant material is passed through, digested, and absorbed in the ruminant digestive system. 10
- (e) “The avian autonomic nervous system does not deviate much from that of the mammals”— Justify the statement. 10
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