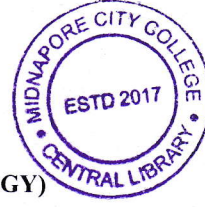


**PG CBCS**  
**M.Sc. Semester-I Examination, 2023**  
**ZOOLOGY**  
 PAPER: ZOO 102  
**(HISTOCHEMISTRY AND ANIMAL PHYSIOLOGY)**



Full Marks: 40

Time: 2 Hours

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

**Write the answer for each unit in separate sheet**

**UNIT: ZOO 102.1**  
**HISTOCHEMISTRY**

**GROUP-A**

1. Answer any **TWO** from the following questions: 2×2=4

- a) Name a stain which locates the nucleus in the cell. Name a fixative used in electron microscopy.
- b) What is meant by decalcification of tissue sample?
- c) Cite one example each of (i) a vital dye, (ii) a dye of plant origin, (iii) a dye of animal origin and (iv) an amphoteric dye.
- d) Define and exemplify fixation artifact.

**GROUP-B**

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

- a) What is the use and composition of Bouin's Fixative?
- b) What do you mean by Antigen retrieval?
- c) What do you mean by non-coagulant and coagulant fixatives? Give examples. 3+1
- d) Write a note on Hematoxylin and Eosin staining technique.

**GROUP-C**

3. Answer any **ONE** from the following questions: 1×8=8

- a) Write the steps of paraffin block preparation for tissue sample histology. Name the types of microtome use in histology. Name the types of microtome knives use in tissue micro techniques. 3+3+2
- b) What is immunohistochemistry (IHC)? When is immunohistochemistry performed? What are the limitations of immunohistochemistry? 2+3+3

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(2)

**UNIT: ZOO 102.2**  
**ANIMAL PHYSIOLOGY**



**GROUP-A**

4. Answer any **TWO** from the following questions:

2×2=4

- a) Mention a similarity and a dissimilarity between the structure of haemoglobin and myoglobin. What is the function of myoglobin?
- b) What is blood pressure? Why is it measured in artery but not in vein?
- c) Which events of the cardiac cycle are represented by P wave, QRS complex and T wave of an ECG of mammalian heart?
- d) Mention the mechanism and significance of pilo-erector in cold weather.

**GROUP-B**

5. Answer any **TWO** from the following questions:

2×4=8

- a) Describe the source, chemical nature and mode of action of the glycoprotein hormone that stimulates erythropoiesis in mammals.
- b) Elaborate the role of baroreceptors in regulation of blood pressure.
- c) What is nitrogen narcosis in sea divers? What are its symptoms? What measure should be adopted to prevent this disorder? 1+1+2
- d) State the role of any two dietary antioxidants and any two antioxidant enzymes in the removal of ROS from our body. 2+2

**GROUP-C**

6. Answer any **ONE** from the following questions:

1×8=8

- a) (i) What is Haldane effect and what is its significance?  
 (ii) What do you mean by positive and negative feedback loops?  
 (iii) Exemplify positive and negative feedback loops with reference to hormone secretion in the body of mammals. 2+2+4
- b) (i) Mention the location and function of S-A node and A-V node.  
 (ii) Why are ROS considered to be carcinogenic?  
 (iii) Precisely describe the role of thyroid gland in thermogenesis in mammals. 2+2+4

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