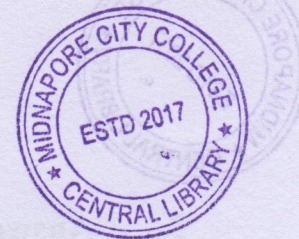


**PG (NEW) CBCS**  
**M.Sc. Semester-I Examination, 2018**  
**ZOOLOGY**  
**PAPER: ZOO-102**

(Histochemistry & Animal Physiology)



**Full Marks: 40**

**Time: 2 Hours**

The figures in the margin indicate full marks.

Candidates are required to give their answer in their own words as far as practicable.

Illustrate the answers whenever necessary.

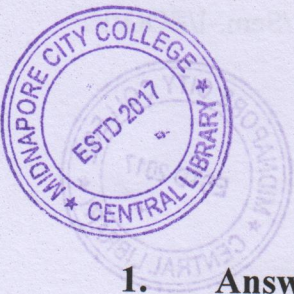
**Use separate Answer Scripts for Group-A & Group-B**

**Group A**

(Histochemistry)

1. **Answer two questions from the following:** **2×2=4**
  - a) Name the steps of tissue processing. **2**
  - b) What are Fixatives? Give one example. **1+1=2**
  - c) What is perfusion? **2**
  - d) Name one stain for nucleic acid. **2**
  
2. **Answer any two of the following questions:** **2×4=8**
  - a) Write about the different fixation procedure of tissues.
  - b) Note down about 'Aldehyde' in tissue fixation.
  - c) What is oxidizing agent? Write the mechanism of tissue fixation by oxidizing agent.
  - d) What do you mean by a 'Complete dye'? Classify dyes according to their chemical nature. **1+3=4**
  
3. **Answer any one of the following questions:** **1×8=8**
  - a) What do you mean by the dehydration of tissues? Why it is essential? Discuss the steps of paraffin block preparation for tissue section. Name two clearing or dealcoholating agent for tissue preparation. **1+2+3+2=8**
  - b) Schematically represent the steps involved in the preparation of the dye Hematoxylin. Mention the significance of alkaline phosphatases. **5+3=8**

(Turn Over)



**Group B**  
(Animal Physiology)

- 1. Answer two questions from the following: 2×2=4**
- a) Present the cell lineage in mammalian erythropoiesis by means of a flow-chart. 2
- b) What do you mean by Homeostasis? Write down its significance. 1+1=2
- c) How do mitochondrial enzymes maintain homeostasis at high altitude? Name one ROS and an anti-oxidant vitamin. 1+1=2
- d) State the difference between shivering and non-shivering thermogenesis. 2
- 2. Answer any two of the following questions: 2×4=8**
- a) Give an account of regulation of erythropoiesis by erythropoietin. 4
- b) i) What is antioxidant defense system?  
ii) State the reactions of SOD, CATALASE and GPPH. 2+2=4
- c) State two similarities and two dissimilarities between myoglobin and hemoglobin. Explain how muscle acts as body oxygen store? 2+2=4
- d) How will your blood and cardiovascular system respond to hypoxia under water? Draw and Einthoven's triangle and indicate different 'leads' of ECG in it. 2+2=4
- 3. Answer any one of the following questions: 1×8=8**
- a) Define 'pacemaker tissues' of heart. Describe different pacemaker tissues. Give a sketch diagram to show the location of these tissues in heart. State the contraction rates of different pacemaker tissues. 1+3+3+1=8
- b) i) Discuss the role of BAT in thermogenesis. State the difference between Hibernation and estivation.  
ii) Explain the role of  $Ca^{++}$  at SA nodal position.  
iii) State the factors that affect the standard Oxygen dissociation curve (ODG). 2+2+2+2=8

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