

PG CBCS
M.Sc. Semester-I Examination, 2021
ZOOLOGY
PAPER: ZOO 102
(HISTOCHEMISTRY & ANIMAL PHYSIOLOGY)

Full Marks: 40

Time: 2 Hours

Write the answer for each unit in separate sheet

UNIT- ZOO 102.1

Histochemistry

Answer any **TWO** questions of the following:

2X10=20

1. What are the micro techniques? Mention its importance of Microtechnique? Briefly describe the method of paraffin block preparation from a tissue sample? 2+3+5
2. What are the main factors affecting fixation of tissue? What is used for tissue fixation? Why paraformaldehyde is used as a fixative? Why is glutaraldehyde not used as a routine fixative? 3+3+2+2
3. What is the most common histological stain? What are the basic histological dyes? Why xylene is used during staining of histological sections? What is the active coloring agent of hematoxylin? Write the composition of Borins fixative. 2+2+3+2+1
4. What are the components identified by immunohistochemistry? Is immunohistochemistry quantitative? What are the different techniques employed for immunohistochemical techniques? 3+3+4
5. What is the difference between histochemistry and enzyme histochemistry? How is enzyme histochemistry done? What is the purpose of the Schiff's reagent step in the PAS method? 3+4+3

UNIT- ZOO 102.2

Animal Physiology

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

2X10=20

1. Schematically represent the Haemopoiesis process. What circulatory adaptations occur in diving mammals during underwater stay? 5+5
2. (a) How are the first and the second heart sounds generated in mammals? (2)
 (b) Give an account of haemopoietic organ in insects. (4)
 (c) What is Bohr Effect? How does Bohr Effect influence oxygen transport in mammals? (2+2)
3. (a) How do the ROS cause damage of cellular DNA ? (2)
 (b) What do you mean by blood volume? State the role of ADH, aldosterone and adrenaline in the homeostasis of blood volume. (1+3)
 (c) What do you mean by natural and ectopic pacemakers of mammalian heart? (2+2)

(P.T.O.)

(2)

4. (a) What do you mean by neurogenic and myogenic hearts? (2)
(b) State the role of vitamin C, vitamin E, superoxide dismutase and catalase in the removal of ROS from our body. (4)
(c) Explain the origin and significance of polycythemia at high altitude. (4)
5. (a) What do you mean by mitochondrial enzymatic acclimatization to high altitude? (2)
(b) Differentiate between laminar and turbulent types of blood-flow from haemodynamic point of view. (4)
(c) What is a counter-current heat-exchanger (CCHE) in animal body? How does a CCHE prevent overheating of the brain in desert mammals? (1+3)
