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PG (NEW) CBCS

M.Sc. Semester-I Examination, 2019

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 any two questions from the following: **2×2=4**

a) What do you mean by 'fixation' ?

b) Why 'clearing' is important in histological slide preparation ?

c) What is a vital dye ? Give an example.

d) Name one dye which is used to stain the nucleus and why ?

2. Answer any two of the following questions: **2×4=8**

a) Write brief note on 'tissue embedding'.

b) Tabulate the steps for 'cryostat' block making and sectioning.

c) Name a commonly used tissue embedding media. Write its advantages and disadvantages. 1+3=4

d) Briefly point out the role of ethanol in tissue processing.

3. Answer any one of the following questions: **1×8=8**

a) What are the steps in processing a tissue for routine histopathology? Explain in detail about section cutting. 4+4=8

b) Give the name and composition of two fixative mixtures used in histopathology. Write note on the tissue processing & staining for immunohistochemistry? 3+5=8

(Turn Over)

Group B

(ANIMAL PHYSIOLOGY)

1. Answer any <u>two</u> questions from the following: **2×2=4**

a) Distinguish between neurogenic and myogenic heart.
b) What is vagal tone? What happens when vagal tone is lost? (1+1)
c) Indicate the cell-lineage found in mammalian erythropoiesis by the help of a flow chart.
d) Highlight the difference between sweating and panting?

2. Answer any <u>two</u> of the following questions: **2×4=8**

a) What are the rhythmicity of different pacemaker tissues of heart? What is Frank-starling law? Explain the significance of Reynold's number. (1+1+2)
b) How are reactive oxygen species (ROS) formed? Mention two harmful effects of ROS. Name two anti-oxidants. (2+1+1)
c) What do you mean by 'oxygen toxicity' in sea-divers? How can it be prevented? (3+1)
d) What is the normal blood volume in an adult man? State the role of ADH, aldosterone and adrenaline in regulation of blood volume. (1+3)

3. Answer any <u>one</u> of the following questions: **1×8=8**

a) What is ECG ? What are the 'standard limb leads' for carrying out ECG? Characterize different waves of a normal ECG with illustration. Cite an example of clinical importance of ECG ? (1+2+4+1)
b) Cite an example of heterothermy. Precisely describe the role of hypothalamus as a thermoregulatory centers in mammals. Give an account of the countercurrent heat-exchanger system of Arctic dolphin with illustration. (1+3+4)

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