2018

M.Sc. 1st Seme. Examination

ZOOLOGY

PAPER—ZOO-102

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.

Illustrate the answers wherever necessary.

Group–A

(Histochemistry)

[Marks : 20]

1. Answer any *two* questions : 2×2

(a) How do you fix n-terminal of amino acids by HCHO ?

(b) Define vital dye with an example.

(c) Mention the composition of Carnoy's fixative and stage its importance in biological sciences. 1+1

(d) Write note on : Immuno Gold Technique.

2. Answer any *two* questions : 2×4

(a) Why are dyes coloured ? Explain with the example.

(b) How do you prepare haematein for the purpose of staining of tissue sections ? State the histochemical technique that determines the RNA materials of the cells. 2+2

(c) Classify dye components on the basis of their chromophoric group. State the composition of FAA fixative. 3+1

(d) Write notes on :

(i) Picric Acid,

(ii) Mordent dye. 2+2

3. Answer any *one* question : 1×8

(a) (i) Explain the use of fluorescent markers in immunohistochemical reaction.

(ii) State the importance of Na-β-glycerolphosphate for determination of 'acid phosphatase' in the lysosomal part of the cell. 4+4

(b) Write notes on (any *four*) of the following : 4×2

(i) Synthetic Dye ;

(ii) ABC-Complex ;

(iii) Heat fixation ;

(iv) Factors affecting fixation ;

(v) Vascular perfusion technique ;

(vi) Haematoxilin without mordant ;

(vii) SBB-test ;

(viii) Dye from animal origin.

Group–B

(Animal Physiology)

[Marks : 20]

4. Answer any *two* questions : 2×2

(a) Define oxidative stress. Mention different types of stressors. 1+1

(b) What do you mean by regional heterothermy ?

(c) What are the different clotting factors involved in haemostasis ? Name the minerals and vitamins essential for synthesis of clotting factors.

(d) How does autonomic nervous system (ANS) regulate blood pressure ?

5. Answer any *two* questions : 2×4

(a) Why do diving vertebrates undergo hypossia unlike aquatic vertebrates? Cite the symptoms of Bend's disease along with the underlying causes. 1+1+2

(b) Illustrate countercurrent cooling mechanism with labelled diagrams in mammals. 2+2

(c) Name the most powerful chamber of heart. Illustrate the conducting and pacing system of a heart. 1+3

(d) Describe with diagram how haemopoietic growth factor (G-CSF) suppress apoptosis.

6. Answer any *one* question : 1×8

(a) Differentiate between

(i) Ectotherms and Endotherms,

(ii) Sweating and Panting,

(iii) Shivering and NST,

(iv) Positive and Negative feedback loop. 2×4

(b) (i) What is the mean pressure difference between systole and diastole maximum ? Which hormones are responsible for increase or decrease of Blood pressure ? Which is the most crucial phase of ECG ?

(ii) Elucidate Frank-Starling's law. Mention the two mechanisms of which heart rate is neurally controlled. (2+1+1)+(2+2)