2008

ZOOLOGY

PAPER—Z 202

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

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

GROUP—A

(*Histophysiology & Histochemistry*)

1. Answer *two* questions from the following: 2 x 2

(*a*) Write briefly on the criteria of a good fixative.

(*b*) Distinguish between:

Haematoxylin

vs

Haematein.

(*c*) Why ferric hematin is superior to alluminium hematin ?

(*d*) Mention the characteristics of a Mordant.

2. Answer *two* questions from the following: 4 x 2

(*a*) What are phosphatases ? Write briefly on the histochemical localization of any one of them. 1 + 3

(*b*) (*i*) Write briefly on the mechanism of action of formaldehyde containing fixatives.

(*ii*) Write in short about the substance you have studied which acts both as a fixative and as a stain. 2 + 2

(*c*) (*i*) Draw and label the functional parts of prostate gland.

(*ii*) Cytological organization of 'Fovea centralis'. 2 + 2

(*d*) (*i*) Give the name of two fluorescent markers used in immunohistochemistry.

(*ii*) Write on functional role of skin in mammals. 2 + 2

3. Answer *one* question from the following: 8 x 1

(*a*) Write notes on any *four* of the following: 2 x 4

(*i*) Dermatoglyphics

(*ii*) Cutaneous biosynthesis of Vit. D_3

(*iii*) Histological structure of retina

(*iv*) Epidermal stem cell

(*v*) Rhodopsin kinase

(*vi*) Na-β glycerophosphate.

(*b*) (*i*) What is the chemical structure of Biotin? Describe the 'Avidin-biotin Complex' (ABC) method for immunohistochemical detection of an antigen.

(*ii*) State the composition of bile. 2 + 5 + 1

GROUP—B

(*Biosystematics*)

4. Answer *two* of the following: 2 x 2

(*a*) Define Microtaxonomy and Macrotaxonomy.

(*b*) What are α–and β–taxonomy ?

(*c*) Holotype and Neotype.

(*d*) Objectives of taxonomy.

5. Write short notes on any *two* of the following: 4 x 2

(*i*) Taxonomic characters

(*ii*) Sympatric species concept

(*iii*) Cladistics phylogeny

(*iv*) Limitations of biological species concept.

6. Answer any *one* from the following: 8 x 1

(*a*) Discuss on the application of cytotaxonomy on the basis of following aspects :

(*i*) —The genetic complement.

(*ii*) —DNA hybridization.

(*iii*) —Karyological studies. $3+2\frac{1}{2}+2\frac{1}{2}$

(*b*) What is Sibling Species ? Cite examples of such species with attributes. Explain for the constancy of phenotype in such species. What is the importance of Sibling species in biology ? 1 + 3 + 2 + 2