

2009

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 and Histochemistry)

1. Answer any *two* questions from the following: 2 × 2

(a) What is Autolysis? State the factors involved in fixation.

1 + 1

(Turn Over)

(b) Distinguish between: 1 + 1

Fixation by formaldehyde.

Vs.

Fixation by Glutaraldehyde.

(c) State the difference between additive and non-additive fixative. 2

(d) What is bathochromy? Explain with example. 2

2. Answer any *two* questions from the following: 4 × 2

(a) What is the basis of classification of dye? Describe with one example for each type of dye. 4

(b) State the cytological organization of prostate gland with a suitable diagram and write its function. 3 + 1

(c) Write the proper application of following reagents: 1 × 4

(i) Tungsten Haematoxylin

(ii) Iron Haematoxylin

(iii) Mayer's Haematoxylin

(iv) Haematoxylin without mordant.

(d) (i) What is the function of colloidal gold in Immunocytochemistry? 2

(ii) Write note on Immunostaining. 2

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

(a) (i) Describe how 'Avidin - Biotin' bridged is formed? Write note on: HRP. 3 + 1

(ii) Describe how fluorescence marker reacts with protein molecule? 2

(iii) (A) State the application of 'Papanicolaou test' in medical science.

(B) Write note on: PAS-reaction. 1 + 1.

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

(i) Dye-mordant-tissue binding

(ii) Fixation artefact

(iii) Vital staining

(iv) Metachromasia

(v) Microwave fixation

(vi) Chromophores.

GROUP—B

(*Biosystematics*)

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

(a) Allopatric and sympatric species.

(b) Sibling species with example.

(c) Stages of taxonomy.

(d) What are plesiomorphic and synapomorphic characters?

5. Answer *two* of the following: 4 × 2

(a) Nominalistic species and Evolutionary species.

(b) State the application of cytotaxonomy in species identification.

(c) Mention the criteria that are employed in phenetics to determine relationships among the taxa.

(d) Significance of types in taxonomy.

6. Answer any *one* of the following: 8 × 1

(a) Following 10 amino acid sequence of a peptide of three frog species (*X*, *Y* and *Z*) along a fish as outgroup, have been found:

Out group — ala, cys, try, ser, ala, cys, cys,
asp, arg, cys

Frog *X* — ala cys val ser ala pro len asp arg
cys

Frog *Y* — ala ala val cys ala try len val arg ala

Frog *Z* — ala ala val cys val try len val arg cys

Construct a tree based on the above amino acid sequence to show the taxonomic relationship among the three frog species.

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(b) Write in brief about the role of systematics (any two): 4 × 2

(i) Agriculture and forestry

(ii) Wild life management

(iii) Public Health Management

(iv) Quarantine measures.