2011

M.Sc.

2nd Semester Examination

ZOOLOGY

PAPER—ZOO-204

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

(Bioinformatics)

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

(a) Describe Biological $\frac{\text{sequence}}{\text{structure}}$ deficit.

(b) Distinguish between a file and a database.

(c) What is Human Genome Project ?

(d) Give examples of database websites that can be used for

(i) Genome overview

(ii) Organism anatomy.

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

(a) What kind of database is 'GenBank'? Describe its function and advantage. Give example.

(b) Match the following correctly :

(i)	Composite Protein Sequence DB	PROSITE
(ii)	Primary Protein Sequence DB	OWL
(iii)	Secondary DB	IDENTIFY
(iv)	Tertiary DB	Swiss Prot
(v)	Primary Nucleic acid DB	Cn3D
(vi)	Structure Database	EMBL

(c) List the array of internet resources for biological sciences.

(d) Write down the full forms of :

(i) BLAST ; (ii) NRDB ; (iii) e-value ; (iv) DDBJ

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

(a) (i) Mention the importance of Bioinformatics. 3

(ii) Which approach out of 'Pattern recognition' and 'prediction' would you prefer for structure analysis and why? 2

(iii) Define DBMS. Explain the features of Database. 1+2

(b) (i) What is the necessity of creating secondary Databases? Illustrate the main approaches for building pattern Databases. 1+2

(ii) What is the purpose of structural database? Give an example. 1+1

(iii) Write a short note on 'SWISS–PROT'? 3

Group—B

(Biosystematics)

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

(i) Typological Species concept and its importance.

(ii) Differentiate Nominalistic species concept and evolutionary species concept.

(iii) Specify the drawbacks of the biological species concept.

(iv) Define sibling species and its significance in biology.

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

(i) Is cytotaxonomy applicable for identification of animal fossil ? Mention its limitations.

(ii) Define and explain the 'Law of priority' with suitable examples.

(iii) Application of systematics in Agriculture and forestry : discuss in brief.

(iv) Write in brief on α, β and γ taxonomy.

6. Answer any *one* question of the following : 2×8

(i) Define and discuss in details the Allopetric speciation.

(ii) What do you mean by Newer systematics ?
Explain in brief the Morphological aspects, Embryological aspects, Behavioural aspects and Numerical aspects of newer systematics.

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