

M.Sc.

2014

2nd Semester Examination

ZOOLOGY

PAPER—ZOO-202

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.

Answer all questions of the following.

(Group-A)

(Bio-Physics)

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

(a) How β^+ particles are originated during radioactive decay ?

(b) Why proteins in our body fluid are negatively charged ?

(Turn Over)

- (c) Briefly describe the structure of Glycophorine.
(d) Write short notes on : Capping.

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

- (a) Write the Principle of Scintillation Counter and mention its application in biological sciences. 3+1
(b) What is colloid ? Draw a diagram to show the charge relationship on a colloid particle. 1+3
(c) State the name and functions of fundamental nanomaterials which are used in Nanotechnology ? 2+2

(d) Write notes on:

- i) Cryonics
ii) Nanotechnology tools. 2+2

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

- (a) How we use the detergent for synthesis of functional biomembrane ? Comment on: FRAP. 6+2
(b) Write short notes on any *four* of the following:
i) Radioactive series.
ii) Black membrane.
iii) Renal dialysis.

- iv) Sodi's displacement law.
- v) Diffusion Co-efficient.
- vi) Donan Phenomenon.

(Group-B)

(Computer application and Bioinformatics)

4. Answer any *two* questions of the following : 2×2
- (a) Convert: $(2015)_{10} = (?)_{16}$
 - (b) Write the full forms of: TCP, LAN, ROM, DDBJ
 - (c) Define Bioinformatics and name the principle approaches in Bioinformatics.
 - (d) What do you mean by redundancy in biological databases ?
5. Answer any *two* questions of the following : 4×2
- (a) What are chaperones ? Name the softwares used for multiple alignment and 3-D structure view.
 - (b) Describe the special features of SWISS-PROT (Uniprot).
 - (c) Distinguish between system software and application software.
 - (d) Classify systematically secondary storage devices and write briefly about their benefits.

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

(a) i) List the features of Database. 4

ii) Match the following: 4

Pubmed	CATH
High Level Language	MIPS
Protein sequence database	BASIC
Nucleic acid sequence database	PROSITE
Secondary database	IDENTIFY
Composite Protein sequence database	EMBL
Tertiary database	NRDB
Structure database	NCBI

(b) i) What is FASTA format? 2

ii) Identify the following components from the URL provided: protocol, subdomain, directories, domain, domain suffix and webpage.

URL: <http://www.tryitnow./help/weblinks.htm>

4

iii) Write a note on BLAST, mentioning its common usage. 4