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6 SEM TDC BOT M 4

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(May)

BOTANY

(Major)

Course : 604

(Biophysics and Bioinformatics)

Full Marks : 48

Pass Marks : 19/14

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

1. (a) Choose the correct answer of the following : 1×3=3

(i) NMR spectroscopy is absorption/
diffraction/radiation/emission.

(ii) "The pH of pure water is neutral",
the best explanation for this is—
the pH of pure water is 7/water do
not contain free H^+ or OH^- ions/
in pure water the concentration of H^+
and OH^- are same/None of these.

(2)

(iii) Each record in a database is known as record/file/ticket/entry.

(b) Fill in the blanks : 1×2=2

(i) The full form of WWW is ____.

(ii) Flow and transformation of energy taking place in living system is called ____.

(c) Write short accounts on the following : 3×3=9

(i) Scope of biophysics

(ii) X-ray crystallography

(iii) Biological applications of LASER

2. Define isotope and radioactivity. Give an account on the role of radioactive isotopes in biological sciences. 3+2+6=11

Or

What is buffer solution? How does it work? Write a note on the importance of buffer solution in biological studies. 3+4+4=11

3. Define sequence alignment. What are the different methods of sequence alignment? Discuss the Dot-Plot method of sequence alignment. 2+4+5=11

(3)

Or

Write a basic concept on phylogenetic analysis. What are the different steps of phylogeny in regards to living organisms? How can we construct a phylogenetic tree?

2+4+5=11

4. Write short notes on any *three* of the following : 4×3=12

- (a) Internet
- (b) Swiss PROT
- (c) BLAST
- (d) Web browser
- (e) Data mining
