6 SEM TDC BOT M 4

2 0 1 8

(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.

(Turn Over)

(2)

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

(b) Fill in the blanks : 1×

(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×

(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

Or

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

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

(Continue

(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

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