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)

(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

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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