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6 SEM TDC BOT M 4

2014

(May)

BOTANY

(Major)

Course : 604

(Biophysics and Bioinformatics)

Full Marks : 48

Pass Marks : 19

Time : 2 hours

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

1. (a) Write the correct answers of the following : 1×3=3

(i) SWISS-PROT is a database of nucleic acid / protein sequences / structures / None of the above.

(ii) Which protocol is used to access data using WWW?

(HTTP / HTML / FTP / SMTP)

(iii) Two-dimensional chromatography is a type of paper / gas-liquid / column / affinity chromatography.

(b) Fill up the blanks : $1 \times 2 = 2$

(i) — is used to determine acidity and alkalinity of substances.

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

2. Write short accounts of the following : $3 \times 3 = 9$

(a) Second law of thermodynamics

(b) Mitochondrial bioenergetics

(c) Thin layer chromatography

3. What is buffer solution? How does it act?

Describe the significance of buffer solution in biological system.

$3 + 4 + 4 = 11$

Or

Define isotope and radioactivity. Give an account of the biological applications of radioactive isotopes.

$5 + 6 = 11$

4. What is sequence alignment? Define pair-

wise and multiple sequence alignments.

Discuss the DOT-PLOT method of sequence alignment.

$2 + 4 + 5 = 11$

(3)

Or

What do you mean by phylogenetic analysis?
Draw and describe a phylogenetic tree
representing evolutionary relationship
between species. 3+3+5=11

5. Write short accounts of the following
(any three) : 4×3=12

- (a) Scope of bioinformatics
- (b) Internet
- (c) Primary and secondary databases
- (d) Data mining
- (e) FASTA

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