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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) In sequence analysis, we do not align

(1) match characters

(2) mismatch characters

(3) two gaps or blanks

(4) None of the above

(ii) The full form of URL is

- (1) Universal Resource Locator
- (2) Uniform Resource Locator
- (3) Unidentified Resource Locator
- (4) Union Resource Locator

(iii) Two proteins have same molecular weight. All of the following techniques can be used for its separation, except

- (1) ion exchange
- (2) affinity chromatography
- (3) SDS-PAGE
- (4) gel filtration

(b) Fill in the blanks : 1×2=2

(i) The full form of LASER is Light _____ by stimulated emission of radiation.

(ii) Geiger-Muller counter is an instrument to measure _____.

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

(i) pH and Buffer

(ii) Redox Potential

(iii) Isotopes

2. What do you mean by thermodynamic principle? Explain first law of thermodynamics. Discuss about free energy and entropy. 2+3+3+3=11

(3)

Or

Write notes on the following :

- (a) Scope and applications of biophysics 2+4=6
- (b) Bioenergetics 5
3. What do you mean by biological databases?
How can you classify biological databases?
Give an account of nucleotide sequence
database with special reference to NCBI
database. 2+4+5=11

Or

Write notes on the following :

- (a) Pairwise and multiple sequence
alignment 2+2=4
- (b) Multidisciplinary approach and scope of
bioinformatics 3+4=7
4. Write short notes on any *three* of the
following : 4×3=12
- (a) FASTA
- (b) ENTREZ
- (c) World Wide Web
- (d) Swiss PROT
- (e) Phyllogenetic tree
