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6 SEM TDC ZOO M 4

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(May)

ZOOLOGY

(Major)

Course : 604

(Biotechnology and Bioinformatics)

Full Marks : 48

Pass Marks : 19

Time : 2 hours

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

Answer Question No. 1 and any **three** from the rest

1. (a) Choose and write the correct answer for the following : 1×3=3
- (i) HTML/FTP/SMTP/HTTP is used to assess data using www.
 - (ii) FASTA is a DNA and RNA/DNA and protein/RNA and protein sequence alignment software package.
 - (iii) The biological tool of genetic engineering linkers contains target sites for the action of one/one or two/one or more restriction enzymes.

(b) Fill in the blanks : 1×2=2

(i) The first somatic hybrid between *Nicotiana glauca* and *N.* _____ was achieved by P. S. Carlson *et al* (1972).

(ii) _____ compares an amino acid query sequence against protein sequence database.

(c) Write short notes on the following :

$3\frac{1}{2}\times 2=7$

(i) Cloning vectors

(ii) Scope of bioinformatics

2. What is genetic engineering? Describe briefly the application of genetic engineering in medicine and agriculture. 2+5+5=12

3. What is human genome project? Write the salient goals of human genome project. Give an account of the application and future challenges of human genome project. 2+5+5=12

4. What are genomics and proteomics? Write briefly role of internet in bioinformatics. 3+3+6=12

5. What is phylogenetic analysis? Describe the steps in evaluation of phylogeny and constructing phylogenetic trees. 2+5+5=12

(3)

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

- (a) Primary and secondary databases
- (b) Transgenic animals
- (c) DNA sequencing
- (d) BLAST
- (e) IPR
