

**P.G. Diploma in Bio - Informatics  
Annual Examinations – 2006**

**Paper PBID – 101  
Introduction to Bioinformatics**

Time allowed: Three hours

Maximum Marks: 80

1. Attempt all questions from Section I.
2. Attempt any six questions from Section II.
3. Attempt any three questions from Section III

**SECTION – I**

Marks

Q1. Attempt all the objective type questions given below and write the correct answer in the answer sheet.

1X20=20

- (i) Double helix model for DNA was proposed by
  - (a) Watson & Crick
  - (b) Sanger F
  - (c) Caris Mullis
  - (d) Gregor Mendal
- (ii) PDB stands for:
  - (a) Public Data Bank
  - (b) Protein Data Bank
  - (c) Popular Data Bank
  - (d) None of the above
- (iii) The model for ICCBnet is:
  - (a) EMBnet
  - (b) BTISnet
  - (c) ITnet
  - (d) None of the above
- (iv) An alignment program for protein sequences created by Pearson and Lipman in 1988 is
  - (a) FASTA
  - (b) CLUSTAL
  - (c) BLAST
  - (d) None of the above
- (v) B2B exchanges rely on an \_\_\_\_\_ foundation.
  - (a) HTML
  - (b) XML

- c) B2BML (d) None of the above
- (vi) A section of DNA at a specific position on a particular chromosome that specifies that amino acid sequence for protein is
- (a) Gene (b) RNA  
(c) Chromosome (d) None of the above
- (vii) Each human cell contains \_\_\_\_\_ sets of chromosomes
- (a) 23 (b) 21  
(c) 46 (d) None of the above
- (viii) DDBJ stands for
- (a) DNA Data Bank of Japan (b) DNA Database of Japan  
(c) Double Database of Japan (d) None of the above
- (ix) Different forms of gene which occupy the same position on the chromosome are
- (a) Amino acids (b) Alleles  
(c) Assembly (d) None of the above
- (x) The first Recombinant DNA molecule was created by
- (a) Needleman-Wunch (b) Paul Berg  
(c) F Sanger (d) None of the above
- (xi) What is created by linking computers at Stanford and UCLA
- (a) ARPANET (b) UCLANET  
(c) INTERNET (d) None of the above
- (xii) The father of genetics is
- (a) Herbert Boyer (b) Watson and Crick  
(c) Paul Berg (d) Gregor Mendal

- (xiii) A www based retrieval program created by the NCBI, a division of NIH is
- (a) Clustal (b) Entrez  
(c) Google (d) None of the above
- (xiv) *Sachromyces Cerevisiae* (bakers yeast 12.1Mb) was sequenced in
- (a) 1995 (b) 1994  
(c) 1996 (d) 1976
- (xv) The human genome was published in
- (a) 2000 (b) 2002  
(c) 2001 (d) None of the above
- (xvi) The process of sequentially converting the codons on mRNA into amino acids which are then linked to form protein is called
- (a) Translation (b) Transfection  
(c) Western Blot (d) None of the above
- (xvii) EBI ultra fast protein database searches using the following MP search algorithm is
- (a) BLITZ (b) BLAST  
(c) FASTA (d) None of the above
- (xviii) A program for Multiple Alignment of DNA and Protein sequences developed by Thompson et al. in 1994 is
- (a) Clustal (b) T-coffee  
(c) Rasmol (d) None of the above
- (xix) Which was the first protein whose sequence was analyzed
- (a) Human Insulin (b) Bovine Insulin  
(c) Bovine Albimin (d) None of the above

(xx) The detail of Needleman- Wunch algorithm for sequence comparison was published in

(a) 1972

(b) 1969

(c) 1970

(d) None of the above

## SECTION – II

Q2. Attempt any six of the following

5X6=30

- (i) What are the applications of bioinformatics?
- (ii) Write a note on Human Genome Project.
- (iii) What are the core requirements of bioinformatics?
- (iv) What is Homology Modeling?
- (v) Write a note on PDB.
- (vi) What are the career opportunities in the field of bioinformatics?
- (vii) Write a note on Intranet.
- (viii) What are the confusions regarding the definition of bioinformatics?

## SECTION – III

Attempt any three questions of the following

10X3=30

Q3. What do you understand by KDD (Knowledge Discovery in Database)? Discuss its various applications.

Q4. Write short notes on the following.

(i) EMBL

(ii) BLAST

(iii) HMM

(iv) FASTA

Q5. Write notes on Internet and discuss its role in Bioinformatics.

Q6. Discuss the role of Bioinformatics in Pharmaceutical industry.