B. Sc. (Bioinformatics) (Sem. IV) (CBCS) Examination

April / May – 2015

B. Sc. BI : 403 Applied Bioinformatics

Faculty Code : 003

Subject Code : 006403

Time : $2\frac{1}{2}$ Hours]   [Total Marks : 70

PART - A

(Max. 30 Minutes)

1 QUANTA is developed by _____ company and used for _____

(a) Schrodinger & Docking

(b) Accelrys & Modelling and Simulation

(c) ChemAxon & Virtual Screening

(d) OpenEye Scientific Software & Ligand optimization

2 Parallel sequencing was used in which technique

(a) Illumina

(b) Roche method

(c) Maxim and Gilbert method

(d) Both (a) and (b)

3 The product for molecular modeling is _____ which is developed by _____.

(a) Maestro & Schrodinger   (b) Maestro & Accelrys

(c) Modeller & OpenEye   (d) Yasara & ChemAxon

4   Which is the enzyme used for removal of T+C base

   (a)   Hydrazine   (b)   Acid catalysed depurinase

   (c)   Piperdine   (d)   Dimethyl sulphate

5   MarvinSketch & MarvinView are the product of _____

   (a)   PerkinElmer   (b)   Cambridge Soft

   (c)   ChemAxon   (d)   OpenEye

6   Modified sequencing method used sequencing gel having

   (a)   Urea   (b)   PAGE +urea

   (c)   Agarose   (d)   Dye

7   Flurophore began to be used in :

   (a)   Capillary Array Electrophoresis

   (b)   Automated Method

   (c)   Modified Sanger's Method

   (d)   Maxim and Gilbert method

8   Difference between dNTP and ddNTP

   (a)   Removal of oxygen in ddNTP

   (b)   dNTP extends DNA strand

   (c)   ddNTP extends DNA strand

   (d)   both (a) and (b)

9 Challenges in Proteomics with Respect to plant Physiology

   (a) Chromatographic separation

   (b) Diabetes research

   (c) Neurological behavioral studies

   (d) Protein regulation and its relation with regulatory networks

10 Which is the specialized format used to store the chemical compounds?

   (a) XML – based Chemical Markup Language

   (b) SMILES

   (c) Both (a) and (b)

   (d) None of the above

11 IBM stands for?

   (a) International Business Machines Corporation

   (b) Indian Bureau of Mines

   (c) International Business Management

   (d) None of the above

12 Short overlapping DNA sequences are called

   (a) Clones   (b) Consensus sequence

   (c) Contigs   (d) Fragments

13 Current NIH & NCBI Directors are respectively

   (a) Francis S. Collins and David J. Lipman

   (b) Eric Green and Francis S. Collins

   (c) David J. Lipman and Eric Green

   (d) None

14 Recombinant clones are used for

   (a) Automated method   (b) Assembly

   (c) Shot gun sequencing   (d) HTS

15 Deoxy-adenosine 5' (α thio) - triphosphate :

   (a) Used for incorporating nucleotide

   (b) Used as dye for high resolution

   (c) Used for base incorporation

   (d) Filter sequence

16 Physical gap is filled using

   (a) A libraries

   (b) Primer directed walking

   (c) Contigs

   (d) Gene libraries

17 SDF stands for _____

    (a) Structure dynamic format

    (b) Structure data format

    (c) Script data file

    (d) None

18 TEpredict is tool for

    (a) MHC-1   (b) MHC-2

    (c) Both   (d) None

19 By using the "reference sequence" developed in the human genome project, individual differences are now being detected using

    (a) NPs   (b) PSNs

    (c) SNPs   (d) "snaps"

20 Discovery Studio is the product of _____ and used for _____

    (a) Schrodinger & Docking

    (b) Accelrys & Docking, and ADMET prediction

    (c) ChemAxon, Docking and ADMET prediction

    (d) OpenEye Scientific Software & Docking and Pharmacophore generation

PART-B

1 (a) Explain **any Three**   6

      (1) Base calling

      (2) List out any four National Bioinformatics company.

      (3) Toxicogenomics

      (4) Accelrys

      (5) Discovery Studio

      (6) Biosafety

   (b) Explain **any Three**   9

      (1) Proteome

      (2) Technology Transfer

      (3) IPR

      (4) Genome technology

      (5) PBR

      (6) Neuroinformatics tools and database

   (c) Attempt **any Two**   10

      (1) Write an essay on growth of International Bioinformatics research.

      (2) Transcriptome and proteome

      (3) Describe in detail about high throughput sequencing method.

      (4) Explain Cheminformatics and its tools and databases

      (5) What are the agreements and organizations overseeing IPR ?

      (6) Biosafety & Bioethics

2   (a)   Explain **any Three**   **6**

         (1)   Therapeutic target

         (2)   Bioinformatics patents

         (3)   Bioethics

         (4)   Clustering

         (5)   Ligand

         (6)   Example for assembly tool

       (b)   Explain **any Three**   **9**

         (1)   Traditional knowledge

         (2)   Cheminformatics tools and database

         (3)   What are the tools available to assemble the sequenced fragments?

         (4)   What is the modification in Sanger's method?

         (5)   What are the factors affecting commercialization of Bioinformatics?

         (6)   Comparative proteomics

       (c)   Attempt **any Two**   **10**

         (1)   NGS

         (2)   How SNPs are used for designing the personalized drug?

         (3)   Immunoinformatics

         (4)   IPR impacts on Biotechnology Research in India

         (5)   Four levels of Biosafety.

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