

[A-85]

No. Of Printed Pages 2

SARDAR PATEL UNIVERSITY
UNIVERSITY EXAMINATION

DATE -06/04/16

DAY-Wednesday

TIME 2:30 TO 5:30 pm

Course- US06CBNF05

SUBJECT: BIOINFORMATICS

CLASS- T.Y.B.Sc VI Sem

TITLE-Bioinformatics Applications II

TOTAL MARKS: 70

Q1- Answer the following Multiple Choice Questions:

[10]

- i) In Microarray technology, genes are fabricated on
 - a) Silicon glass
 - b) Plastic substrate
 - c) Nylon membrane
 - d) all of the above.
- ii) Microarray data processing using _____
 - a) Generative topographic map
 - b) Artificial intelligence
 - c) Artificial neural network
 - d) Self-organizing map
- iii) The sample spot size in microarray is
 - a) 500 μ
 - b) 900 μ
 - c) 200 μ
 - d) 15 μ
- iv) Species evolve by ...
 - a) diversification
 - b) progression
 - c) linear advancement
 - d) magic
- v) Terminal nodes are also known as.
 - a) Leaves
 - b) Root
 - c) Branch
 - d) None
- vi) Expand UPGMA.
 - a) Unweighted Pair Group Method with Arithmetic Mean.
 - b) Unweighted Pair Group Method with All Mean.
 - c) Upregulated Gene Method with Arithmetic Mean.
 - d) Unregulated Genome Method with All Mean.
- vii) Which route of drug administration is most likely to lead to the first-pass effect?
 - a) Sublingual
 - b) Oral
 - c) Intravenous
 - d) intramuscular
- viii) AZT (Azedothymidine drug) designed against
 - a) AIDS
 - b) fever
 - c) cold
 - d) TB
- ix) How many codons are needed to specify six amino acids?
 - a) 3
 - b) 6
 - c) 18
 - d) 21
- x) The secondary structure formed when single-stranded DNA or RNA is inverted and complementary is.....
 - a) double helix
 - b) B-DNA
 - c) Z-DNA
 - d) hairpin

[P.T.O]

Q2- ANSWER IN BRIEF (Attempt any 10) (each carry 2 marks)

[20]

- i. Differentiate average linkage and complete-linkage.
- ii. Differentiate High throughput screening and virtual screening .
- iii. How Macroarray differ from Microarray?
- iv. How mutation plays an important role in evolution?
- v. Differentiate between Rooted and Unrooted tree.
- vi. Enlist any two softwares for both phylogenetics analysis and CADD.
- vii. What is a basic structure of phylogenetic tree?
- viii. Explain preclinical and clinical trial in CADD.
- ix. Define Combinatorial Chemistry and docking.
- x. Elaborate different route of drug-delivery system.
- xi. Differentiate between DNA and RNA structure.
- xii. Give the applications and limitations of Mfold method.

Q3 What Is microarray? Discuss its methods and applications in detail.

[10]

OR

Q3 Discuss the clustering method and its types.

[10]

Q4 What is a phylogenetic tree? Discuss its important methods and applications.

[10]

OR

Q4-Construct the tree using UPGMA method with following matrix table-

[10]

	A	B	C	D
A	0			
B	8	0		
C	7	9	0	
D	12	14	11	0

OR

Q5 Define drug and its basic features. Explain the steps for CADD.

[10]

OR

Q5 Write a short note on following:

i) High Throughput Screening ii) knockout Gene iii) Lipinski's rule.

[04+03+03]

Q6-i) Explain M-fold method and its utility.

[05]

Q6 ii) Elaborate tertiary structure of RNA.

[05]

OR

Q6- Write a short note on following:

i) A, B and Z type of DNA ii) tRNA structure

[10]

$X=X=X$

②