

M. Sc. DEGREE EXAMINATION, APRIL 2015
BIOINFORMATICS
FOURTH SEMESTER

COURSE : CORE
PAPER : RECENT ADVANCES IN BIOINFORMATICS
TIME : 3 HOURS
MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS (20 X 1=20)

1. The epitope is one of the part of the following
a. Antibody b. Drugs c. Antibiotic d. Vaccine
2. The identification of the utility of a gene in a particular genome by the way of
a. structural proteomics b. functional proteomics
c. structural genomics d. functional genomics
3. R programming is application of the _____ programming language.
a. S b. C++ c. perl d. Java
4. R. programming was developed by
a. Chambers b. Gentleman c. Bil Gates d. Apple
5. The DNA microarrays are used to tracks mutations in the specific DNA sequences is known as
a. Comparative genomic hybridization b. DNA variation screening
c. gene expression profiling d. antisense RNA technology
6. R – frequently used for
a. matrix algebra b. GUI c. database d. spreadsheet
7. A microarray commonly contains _____ nucleotides.
a. 1–5 b. 5–15 c. 15–25 d. 25–100
8. Which of the following is the amount of a drug absorbed per the amount administered?
a. Bioavailability b. Bioequivalence c. Drug absorption d. Bioinequivalence
9. The invention emolecules by
a. Del Mar b. Craig c. Johnson d. Mishra
10. Which of the following is in correct order of evolution of cheminformatics:
a. Chemical information→Chemoinformatics→Cheminformatics
b. Chemoinformatics→ Cheminformatics→ Chemical information
c. Chemoinformatics→ Chemical information→ Cheminformatics
d. None of the above

11. What does Pharmacokinetics means?
a. What the drug does to the body b. What the body does to the drug
c. Both a and b d. None of the above
12. How do scientists gather pharmacogenomic information?
a. From biochemical pathway b. from gene sequence
c. from gene expression d. all the above
13. In what ways can doctors use pharmacogenetics to help them treat their patients?
a. treat different to one for each patient b. selection of right dos
c. selection of right drug d. all the above
14. The pharmacogenetic test _____ is used for find out the drug metabolism
a. CYP2D6 b. CYP2C19 c. both a and b d. none of the above
15. When interpreting the results of microarrays, the degree of hybridization between a given probe and an organism to be identified is measured by
a. turbidity read in a spectrophotometer
b. color intensity of an image produced by scanning with a laser beam
c. length of the probe formed
d. degree of agglutination
16. Quantitative monitoring of gene expression patterns with a complementary DNA microarray is by
a. Stanford technology b. Affymetrix c. Stanford Microarrays
d. cDNA
17. When building a microarray, we know the sequence of the oligonucleotides, but not their position.
a. True b. False
18. Nucleotides are made to attach to the glass by a light activation reaction.
a. True b. False
19. How are the four different bases distinguished in automated sequencing systems?
a. each base has a different radioactive tag
b. each base has a distinctive fluorescent tag
c. each base has a unique antibody bound to it
d. all the above
20. Characterization of antigens by electrophoresis and immunofixation relies on the reaction of antigen and antibody in (or on):
a. Agar. b. Streptavidin. c. Gold-plated sensor chip. d. microtiter plates

SECTION – B

ANSWER ANY FOUR QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 500 WORDS. (4 X 10 = 40)

21. Explain the reason for R programming as deluxe calculator.
22. What are the characteristic features used for processing the microarray data?
23. Write short notes on Micro array data management.
24. How the eMolecule tool used for chemical drawing?
25. Describe immunome and also mention about vaccine design tools.
26. Explain about the salient features of Preclinical Toxicology.
27. How the bioinformatics tools used for detection of immune function.

SECTION – C

ANSWER ANY TWO QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 1200 WORDS. (2 X 20 = 40)

28. Briefly explain about the pharmacokinetics and metabolism of any one of the drug used for Alzheimer disease.
29. Write the salient features of SMILES chemical drawing packages used for searching chemicals and construction of 3 D molecular structures.
30. Write short notes on a. epitope mapping b. Molecular descriptors.
31. Explain the steps involved in designing the Microarray experiment and visualizing and processing the microarray data.
