

JUL 29 2018

KATHMANDU UNIVERSITY
End Semester Examination
July, 2018

Mark scored:

Level : B. Tech.
Year : IV

Course : BIOT 414
Semester: II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date

JUL 29 2018

SECTION "A"
[10 Q × 1 = 10 marks]

Mark "X" in the most appropriate box.

- Which Proteomics helps us to monitor changes arising from developmental, environmental or disease perturbations
 Functional Expressional
 Structural Non of the above
- After Iso Electric Focusing, the IPG strip is soaked in an equilibration buffer consisting of
 SDS Urea
 Glycerol All of the above
- During microarray analysis, if the experimental sample is colored red, the control samples green, and the result show green fluorescent, the respective gene is
 Upregulated Downregulated
 No change in expression Non of the above
- Which of the following gene, encodes a protein required for leucine synthesis
 LEU1 LEU2
 LEU3 LEU4
- The sensitivity of a MS instrument means it can obtain data
 very fast of similar m/z ratio
 with sharp peaks at femtomole quantity.
- Which of the following amino acid is most likely to be in alpha helice?
 Glycine Cysteine
 Methionine Proline
- During phylogenetic analysis, _____ mutations may have occurred, when both nucleotides in the sequence mutate into same nucleotide.
 Intermediate Back
 Parallel Multiple
- In modern terms, drug discovery process begins with
 Treatment Diseases
 Lead Compound High throughput screening

9. Which of the following Algorithm use Prealignment method for RNA secondary structure prediction.
- | | |
|-------------------------------------|--------------------------------------|
| <input type="checkbox"/> RNAalifold | <input type="checkbox"/> Foldalign |
| <input type="checkbox"/> RNAalign | <input type="checkbox"/> RNAprealign |
10. _____ expressed mRNAs correlate well with protein levels
- | | |
|---------------------------------|---|
| <input type="checkbox"/> Lowly | <input type="checkbox"/> Moderately |
| <input type="checkbox"/> Highly | <input type="checkbox"/> Non of the above |

SECTION "B"

[10Q × 1= 10 marks]

Fill in the blanks.

11. The first protein to be sequenced in 1951 is _____.
12. IPG stands for _____.
13. If a certain gene _____ is found to be conserved across divergent genomes, the encoded proteins are functionally coupled.
14. In MALDI molecules are desorbed from the surface, usually by _____ protonation.
15. A 50KDa protein approximately has _____ amino acids.
16. During phylogenetic tree construction using UPGMA method, the taxa with _____ distance are grouped together first.
17. _____ structures have an integral repeat of seven residues (heptads)
18. In CADD the 3D structure of protein is determined through _____
19. _____ was technique developed by Dr. Victor Velculescu at the Oncology Center of Johns Hopkins University.
20. _____ are the type of RNA that has catalytic activity.

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SECTION "C"

(Long answer questions)

[4Q × 6 = 24 marks]

Attempt *ANY FOUR* questions.

1. Why is study of protein protein interaction important? Describe the Yeast Two Hybrid assay? [2+4]
2. Describe the different analyser instruments used in Mass Spectrometry?
3. How is secondary structure prediction for Transmembrane proteins done?
4. What is molecular phylogenetics? What are the procedures involved in making a phylogenetic tree? [1+5]
5. What are the different methods of Gene expression and Analysis? Discuss any two of them in details? [1+5]

SECTION "D"

[3Q × 2 = 6 marks]

6. Write short notes on: (*ANY THREE*)
 - a. 2D Gel electrophoresis
 - b. MALDI
 - c. RNA Secondary Structure
 - d. CADD
 - e. Expressional Proteomics

