

**M. Sc. Bioinformatics Sem.-III (2013 Course) (Choice Based Credit Systems) : WINTER - 2018**

**SUBJECT: ELECTIVE-IV: a) RECENT TRENDS IN BIOINFORMATICS**

Day: Wednesday  
Date: 31/10/2018

**W-2018-1263**

Time: 02.00 PM TO 05.00 PM  
Max Marks: 60

**N.B.:**

- 1) **Q. No 1 and Q. No.5 are COMPULSORY.** Out of the remaining, attempt **ANY TWO** from each section.
- 2) Answer to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.
- 4) Draw neat labeled diagram **WHENEVER** necessary.

**SECTION-I**

- Q.1** Write two applications of: **(10)**
- a) SQL
  - b) GraphPad Prism
  - c) CERF
  - d) Galaxy
  - e) IGV
- Q.2** Answer the following : **(10)**
- a) How Matlab could be utilized in bioinformatics?
  - b) How excel would be utilized for bioinformatics data analysis? Explain with example.
- Q.3** Write short notes on: **(10)**
- a) RNA- seq data analysis
  - b) Mapping NGS reads.
- Q.4** What is Circos plot? How do you utilize it for biological data? Explain with example. **(10)**

**OR**

How EMSEMBL could be utilized for comparative genomics?

**SECTION-II**

- Q.5** Explain: **(10)**
- |              |                 |                       |
|--------------|-----------------|-----------------------|
| a) UCSC      | b) Cool BARC    | c) Genome coordinates |
| d) Chip- seq | e) Bioconductor |                       |
- Q.6** Answer the following: **(10)**
- a) How R is useful for data analysis?
  - b) Explain the steps involved in microarray data analysis?
- Q.7** Write short notes on: **(10)**
- a) Enrichment analysis
  - b) Cytoscape
- Q.8** What is MEGA? How it is useful for phylogenetic analysis? Explain its silent features. **(10)**

**OR**

Explain in detail given GeneGo working principal. State its applications & drawbacks.