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No. of Printed Pages—2

CS—024 / IT—704

**B. TECH.**  
**SEVENTH SEMESTER EXAMINATION, 2003-2004**  
**BIO-INFORMATICS**

Time : 3 Hours

Total Marks : 100

^ Note : All questions carry equal marks.

1. Attempt any *FOUR* parts :— (5×4=20)

- (a) Define Bio-informatics. What is its importance ?
- (b) How is molecular biology data different from scientific data ?
- (c) Describe the database annotation quality of bio-informatic database.
- (d) Describe Genome Project in brief.
- (e) Describe the geographical expansion and importance of EMB net.
- (f) What is importance of protein sequence database ?

2. Attempt any *TWO* parts :— (10×2=20)

- (a) What is Biodiversity ? How can an evolution tree be prepared using plant diversity of an ecogeographical zone ?
- (b) Draw the structure of four usual nucleic acids.
- (c) How does information remain stored at genetic level ? Explain.

42

- (a) Proteins are more diversified than nucleic acids, why? Explain various levels of protein structures.
- (b) What do you understand by Molecular Interactions? Describe their importance in central dogma of life.
- (c) Explain nucleic acid and protein interaction during the process of translation.
4. Attempt any FOUR parts :— (5×4=20)
- (a) What is Expression Sequence Tag (EST)?
- (b) What is Expression Profile? Describe Gene Expression.
- (c) What is computational representation of biological data? Describe a secondary database using regular expression.
- (d) Describe the utility of fuzzy regular expression for data storage mechanism.
- (e) Define Database. Describe design fundamentals of relational database.
- (f) What is Twilight Zone? Explain.
5. Attempt any TWO parts :— (10×2=20)
- (a) What are the special requirements for the storage of biological data types? Describe in brief.
- (b) What is Dayhoff Mutation Data Matrix? Where is it used?
- (c) Describe the application of stochastic formal grammar to biological sequences.

