

(DBI 01)

P.G. DIPLOMA EXAMINATION, MAY 2007.

Bioinformatics

Paper I – PRINCIPLES OF CELL AND MOLECULAR BIOLOGY AND BIOINFORMATICS

Time: Three hours

Maximum: 100 Marks

Answer any FIVE questions

All Questions carry equal marks.

1. Give an account on the various cell organelles and their functions.
2. Explain the various steps involved in meiosis.
3. Describe the Watson and Crick's model of DNA with a neat diagram.
4. Explain various types of mutations.
5. What is bio informatics ? Explain the challenges in Information processing.
6. Explain the organization and functions of the genetic material.
7. Write an essay on genetic code.
8. Explain the steps involved in the process of translation.
9. Describe about the various methods of inducing mutations chemically.
10. Explain the scope and importance of Bio informatics in the present day..

(DBI 02)

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Paper II – NUMERICAL METHODS, OPTIMIZATION TECHNIQUES AND COMPUTER PROGRAMMING

Time: Three hours

Maximum: 100 Marks

Answer any FIVE questions

All Questions carry equal marks.

1. Explain parallel and sequential computing and compare them.
2. Describe the various operating systems in vogue.
3. Enumerate the errors involved in the constructions of mathematical models.
4. Describe a method for minimization of functions.
5. Illustrate the salient features of C language.
6. Discuss the tools and tasks involved in designing web pages.
7. Explain the role of Fourier transform as an analytical tool.
8. Discuss the first and second order optimization techniques.
9. Write an elaborate note on system software.
10. Bring out the inherent parallelism found in physical and biological phenomena

(DBI 03)

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Paper III – DATABASE MANAGEMENT AND BIOLOGICAL DATABANKS – MOLECULAR DESIGNING

Time: Three hours

Maximum: 100 Marks

Answer any FIVE questions

All Questions carry equal marks.

1. Explain the scope and importance of bioinformatics.
2. Discuss on searching biological database.
3. Discuss about genomic databanks.
4. Describe in detail about microbial databanks.
5. Write an essay on gene bank data model.
6. Describe the features and importance of NCBI.
7. Explain the primary structure of proteins.
8. Describe the secondary and tertiary structure of RNA.
9. Write an essay on simulation studies.
10. Discuss about optimization of biopolymers.

(DBI 04)

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Paper IV – GENOMIC AND PROTEOMICS AND SEQUENCING ANALYSIS

Time: Three hours

Maximum: 100 Marks

Answer any FIVE questions

All Questions carry equal marks.

1. Explain the organization of genome in eukaryotes.
2. Write an essay on crossing over.
3. Describe the regulation of gene expression in prokaryotes.
4. What are micro arrays ? Write about their working and applications.
5. Write an essay on protein trafficking
6. Discuss about Ramachandra's plot.
7. Explain Drug designing.
8. Explain any one method of sequence alignment and its applications.
9. Write about the principle, working and application of PCR.
10. Give an account on the various applications of genetic engineering with suitable examples.