

M.Sc. Semester—IV (CBCS Pattern) Examination

BIO-INFORMATICS

(Bio-Programming—II)

Paper—XV

Time : Three Hours]

[Maximum Marks : 80

Note :—(1) **ALL** questions are compulsory and carry equal marks.

(2) Draw suitable diagram wherever necessary.

1. (a) What is Java ? Describe its features. 4
- (b) How Java handles garbage collection ? Explain. 4
- (c) What is meant by Recursion ? Explain. 4
- (d) Write a program to find sum and product of two integers. Use command-line argument. 4

OR

- (p) Describe relational operators provided by Java language. 4
 - (q) Describe the structure of a Java class. 4
 - (r) Why Java is called as object-oriented language ? Explain. 4
 - (s) Explain for loop provided by Java language. 4
2. (a) What is 'Super' ? Explain. 4
 - (b) What is meant by package ? How do we create it ? Explain. 4
 - (c) What is dynamic method dispatch ? Explain by means of suitable example. 4
 - (d) Describe the necessity of multiple catch clauses. 4

OR

- (p) Explain any two Java's built-in exceptions. 4
- (q) What is meant by an interface in Java ? How do we implement them ? 4
- (r) Explain Public and Private access modifier. 4
- (s) What is an abstract class ? Explain. 4

3. (a) Explain with example any two methods of Thread class. 4
(b) What is meant by synchronization ? Explain. 4
(c) How can a thread be created by implementing the Runnable interface ? Explain with suitable program. 8

OR

- (p) What is Thread Priority ? Explain its purpose. 4
(q) Describe 'Sleep' and 'Start' method of Thread class with example. 4
(r) What is deadlock ? How it can be avoided ? Give suitable example. 8
4. What is meant by stream ? Explain byte and character streams. 16

OR

What is an applet ? Write any simple applet and describe its execution with respect to applet viewer and with respect to Web browser. Assume suitable data. 16

5. Describe important features of Bio-Java and write a program to translate a DNA sequence to Protein. 16

OR

What is Dynamic programming ? Write a program in Bio-Java to execute local sequence alignment by Dynamic programming algorithm 16