0305E336

Candidate's Seat No :_____

M.Sc. (Sem.-II) Examination

407

Bio Informatics

Time : 3 Hours]

May-2017

[Max. Marks : 70

Q.1 (A) Explain in detail various models and structure of plasma membrane with suitable diagrammatic representation.
[7 marks]

OR

Q.1 (A) Discuss in detail about the structural organization and various functions performed by the Golgi Complex.
[7 marks]

Q.1 (B) Draw labeled diagram & describe structure of nucleus &nuclear pore complexes in detail.
[7 marks]

OR

Q.1 (B) Discuss types of Endoplasmic reticulum & state differences between them.[7 marks]

Q.2 (A) Define cell cycle and three major phases of the cell cycle.
[7 marks]

OR

Q.2 (A) Discuss role of Cyclins & Cyclin dependent Kinases in cell cycle regulation. [7 marks]

Q.2 (B) Name 5 different enzymes and their specific substrate present in lysosyme. Discuss in detail about the lysosomal storage disorders (LSDs).
[7 marks]

OR

Q.2 (B) Describe in detail about various components of intrinsic apoptotic pathway.[7marks]

Q.3 (A) Describe components of spectrophotometer.
[7 marks]

OR

Q.3 (A) What are the principles of separation techniques and describe general methods of separation.
[7 marks]

Q.3 (B) Factors affecting electrophoresis.
[7 marks]

OR

Q.3 (B) Write a brief note on centrifugation technique.
[7 marks]

Q. 4(A) Describe C3 cycle.
[7 marks]

OR

Q.4 (A) Explain factors effecting photosynthesis.
[7 marks]

Q.4 (B) Give type of dormancy.
[7 marks]

OR

Q.4 (B) Explain bioassay of Auxins.
[7 marks]

Q.5 Answer the following questions:
[14 marks]

1. What is FISH?
2. Give two significance of electrophoresis in Biology.
3. What is the relation between Lambert-beer's Law.
4. What is confocal microscopy?
5. When does photorespiration occurs?
6. Define Photophosphorylation.
7. Name any two long day plants.
8. What is Hypogeal germination?
9. Define photoperiodism.
10. Name any two plant growth inhibitors.
11. Define Biological clock.
12. Who discovered C4 pathway?
13. The DNA to protein ratio in chromatin is..........
14. What is phagocytosis?

0505E385   Candidate's Seat No :_____

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Time : 3 Hours]   May-2017   [Max. Marks : 70

Q.1 (A) Write a short note on Array in C with suitable examples   [7 marks]
                                    OR
Q.1 (A) Write a program to create integer array and perform bubble sort   [7 marks]
Q.1 (B) Brief note on Functions in c and perform one program which covers "pass by reference "feature in C.
                                                                        [7 marks]
                                    OR
Q.1 (B) Write a program to display Fibonacci series with recursion   [7 marks]

Q.2 (A) What is data structure? Explain in detail   [7 marks]
                                    OR
Q.2 (A) Write a program to create integer list with QUEUE concept   [7 marks]
Q.2 (B) Explain STACK in detail with proper examples   [7 marks]
                                    OR
Q.2 (B) Write a program to create character list with array and perform following operations
        (I) Create Array
        (II) Addition of element in array
        (III) Delete element from array
        (IV) Display array
Q.3 (A) Explain algorithm design techniques in detail   [7 marks]
                                    OR
Q.3 (A) Write a program to create integer array and find particular element from the array with "sequential search" manner
                                                                        [7 marks]
Q.3 (B) Explain O-notation in detail   [7 marks]
                                    OR
Q.3 (B) What is computer algorithms? Explain in detail   [7 marks]

Q. 4(A) What is difference between bubble sort and selection sort? Explain with example
                                                                        [7 marks]
                                    OR
Q.4 (A) Write a program to create character array and sort it with "Insertion sorting" concept
                                                                        [7 marks]
Q.4 (B) what is difference between computer algorithm and genetic algorithms?   [7 marks]
                                    OR
Q.4 (B) Explain genetic algorithm in detail   [7 marks]

Q.5 Multiple choice questions   [14 marks]
1. Define Self-referential structure
2. Which of the following algorithm does not divide the list –
        A) linear search   B) binary search
        C) merge sort   D) quick sort
3. Which if the following is/are the levels of implementation of data structure
        A) Abstract level   B) Application level
        C) Implementation level   D) All of the above
4. Stack is also called as
        A) Last in first out   B) First in last out
        C) Last in last out   D) First in first out

(P.T.O)

5. .... Is a pile in which items are added at one end and removed from the other.

    A) Stack   B) Queue

    C) List   D) None of the above

6. Which of the following data structure can't store the non-homogeneous data elements?

    A) Arrays   B) Records

    C) Pointers   D) Stacks

7. The logical or mathematical model of a organization of data is called a ....

    A) Data structure   B) Data arrangement

    C) Data configuration   D) Data formation

8. Arrays are best data structures

    A) For relatively permanent collections of data.

    B) For the size of the structure and the data in the structure are constantly changing

    C) For both of above situation

    D) For none of the above

9. Each node in a linked list has two pairs of .... and ....

    A) Link field and information field   B) Link field and avail field

    C) Avail field and information field   D) Address field and link field

10. A .... does not keep track of address of every element in the list.

    A) Stack   B) String

    C) Linear array   D) Queue

11. When does top value of the stack changes?

    A) Before deletion   B) While checking underflow

    C) At the time of deletion   D) After deletion

12. Define QUEUE

13. Define O-notation

14. Give three advantages of Binary search

0805E435   Candidate's Seat No :_____

M.Sc. (Sem.-II) Examination
409
Bio Informatics

Time : 3 Hours]   **May-2017**   [Max. Marks : 70

Subject: Database Management System

Que.1 (A) Write a difference between DBMS and RDMS.   7 marks

OR

Describe in detail logical DBMS architecture with diagram.

Que.1 (B) Write a short note on: 7 marks

(i)Query language processor (ii) Application program interface

OR

Describe in detail physical DBMS architecture with diagram.

Que.2 (A) What are logical operators and explain them.   7 marks

OR

Design a E/R diagram for hotel and post office.

Que.2 (B) Write short notes on joins.   7 marks

OR

Design a E/R diagram for Bank and Shopping mall.

Que.3 (A) Name and explain protein structure databases.   7 marks

OR

Describe any three tools of NCBI databse.

Que.3 (B) Explain Protein classification database in detail.   7 marks

OR

Describe Interpro database with its application in bioinformatics.

Que.4 (A) Explain data mining model and task.   7 marks

OR

Give brief note on data mining.

Que.4 (B) Explain clustering task in data mining.   7 marks

OR

Explain the type of attributes (Nominal, Ordinal, Interval and Ratio).

Que.5 Choose the correct option   14 marks

1. The language which has recently become the defacto standard for interfacing application programs with relational database system is

(a) Oracle   (b) SQL
(C) Dbase   (d) 4GL

2. Count function in SQL returns the number of

(a) values   (b) distinct values
(C) groups   (d) columns

3. What is essentially used to search for patterns in target string?

(a) Like Predicate   (b) Null Predicate
(c) In Predicate   (d) Out Predicate

4. Which of the following operation is used if we are interested in only certain columns of a table?

(P.T.O)

(a) PROJECTION
(b) SELECTION
(c) UNION
(d) JOIN

5. It is an association established between common.
(a) Line
(b) Relationship
(c) Primary key
(d) Records

6. In case of entity integrity, the primary key may be
(a) not Null
(b) Null
(c) both Null & not Null
(d) any value.

7. What type of relationship exists between a Student table and Fees table?
(a) One to one
(b) One to many
(c) Many to many
(d) One to many and many to many

8. Who introduced the relational database rules?
(a) Atul kahate
(b) James Gossling
(c) EF Codd
(d) Dennies Rithchie

9. This allows definitions and query language statements to be entered, query results are formatted and displayed.
(a) Schema Processor
(b) Query Processor
(c) Terminal Interface
(d) None of the above

10. In the architecture of a database system external level is the
(a) physical level
(b) logical level
(c) conceptual level
(d) view level

11. The way a particular application views the data from the database that the application uses is a
(a) module
(b) relational model
(c) schema
(d) sub schema

12. It is better to use files than a DBMS when there are
(a) Stringent real-time requirements
(b) Multiple users wish to access the data
(c) Complex relationships among data
(d) All of the above

13. Drop Table cannot be used to drop a table referenced by a .... constraint.
(a) Local key
(b) Primary key
(c) Composite key
(d) Foreign key

14. Architecture of the database can be viewed as
(a) two levels
(b) four levels
(c) three levels
(d) one level