M.Sc. IT (Part I) Examination, 2013

Computer Organization

Part A (Marks: 10)

1. Give one example of logical operation.

2. Name any four permanent storage devices.

3. List the various addressing modes.

4. What is a multiplexer?

5. Give an example of shift rotate instruction.

6. What is the difference between fired point and floating point representation?

7. List all the logic gates.

8. Differentiate between data bus and address bus.

9. What are priority interrupts?

10. What are the various parts of CPU.

Part B (Marks: 10)

11. What is the difference between a sequential and combinational circuit.

12. List the various interrupts and their meanings.

13. Differentiate between an encoder and a decoder.

14. What do you understand by cache coherence?

15. What is associative memory?

Part C (Marks: 60)

16. (a)   Draw the Block diagram of 8085 and also gives its pin configuration.

   (b)   Describe the memory hierarchy.

17. Describe the mechanism of DMA along with 8257 DMA controller.

18. (a)   Describe 8255 programmable peripheral interface.

    (b)   Describe 8086 instruction set.

M.Sc. IT (Part I) Examination, 2013

Data Structure and Algorithm

Part A (Marks: 10)

1. What is the difference between Pseudo code and Flow chat?
2. What is the signification of constant data type in C language?
3. Explain the role of continue with an example.
4. What type of operation can be performed on pointers? Give example for each.
5. What data structure is used in Radix Sort?
6. What is the difference b/w tree and Binary Tree?
7. Write the 'C' Structure code for a Binary Tree?
8. Why we used typed if in linked list programming?
9. Write the adjacency matrix for the Graph.
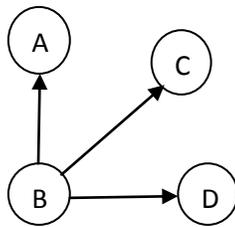
10. What is recursion?

Part B (Marks: 10)

11. Discuss the array and linked list representation of a complete graph.
12. Is it possible to store 2 stack in one array?
13. What is DEQUEUE?
14. Write an algorithm to implement insertion at last node in doubly linked list.
15. What is a complexity measure of an algorithm?

Part C (Marks: 60)

16. Write as algorithm for merge Sort Technique (Sorting is in decreasing order.)

OR

(a) The preorder traversal sequence of a binary search tree in 30, 20, 10, 15, 25, 23, 39, 35, 42. What is the postorder sequence of the tree?

(b) Write an algorithm for Inorder traversing in a tree.

17. (a) Write algorithm for postfix expression evolution. Show each step for the following postfix expression evaluation.

   A $\uparrow$ BC * D-where A = 2, B = 1, C = 2, D = 2

   (b) Write an algorithm to read a M X N matrix using row major mapping.

   OR

   (a) Can the tower of Hanoi problem be solved using recursion.

   (b) How can a polynomial be represent in a linked list?

18. (a) Justify whether the statements below are correct:
   i. $3n+2=O(n)$
   ii. $3n+2=\Omega(n)$
   iii. $3n+2=\Theta(n)$
   iv. $10n^2+4n+2=O(n^2)$
   v. $6 \times 2^n+n^2 \neq \Theta(n^2)$

   (b) How a sparse matrix can be represented using a linked structure?

OR

a) Write an algorithm to delete a particular mode from a binary search Tree.
b) Explain BFS with a suitable example.

M.Sc. IT (Part I) Examination, 2013

Relational Database Management System

Part A (Marks: 10)

1. What do you mean by Relational Database?

2. What is data integrity?

3. What are Indexes?

4. What is temporal database?

5. List five DML commands in SQL?

6. What is the difference between a WHERE clause and a HAVING clause of SQL select statement?

7. What is the data Placement?

8. What are various data recovery techniques?

9. What is function in SQL? What are its various types?

10. What is the functionality of following operator in SQL:

    i.   ANY

    ii. EXISTS

Part B (Marks: 10)

11. What is file organization? List the merits and demerits of random file organization?

12. What short note on the following:

    i.   Distributed database

    ii. Object Oriented Modeling

13. What is query optimization? How it is performed?

14. What is JOIN in SQL? Explain?

15. What is transaction? What are its various states?

Part C (Marks: 60)

16. What are various objects of a Database System? Explain.

    OR

    What is normalization? Explain it up to BCNF with a suitable example?

17. What is Concurrency in database? Explain Two Phase locking with an example?

    OR

    Draw an E-R diagram of College Management System and show the following:

    i.   Generalization

    ii.   Specialization

    iii.   Aggregation

18. What is Data Mining? Write the association rules?

    OR

    Explain the following:

    i.   Stored procedure

    ii.   Trigger

**M.Sc. IT (Part I) Examination, 2013**

Discrete Mathematical Structures

Part A (Marks: 10)

1. Define coset.

2. Define linear recursion relation.

3. Explain lexicographic.

4. Explain Bounded Lattice.

5. What is Binary Tree?

6. What is equivalence class?

7. Define well order set.

8. Explain partial order set and total order set.

9. Define upper bound and lower bound.

10. Explain surjective mapping.

Part B (Marks: 10)

11. Let A = {2, 3, 4, 5} and R be the relation on A defined as a Rb if a < b. Find Dom (R) and Range (R).

12. Find the in degree and total degree of each vertex in the following graph a
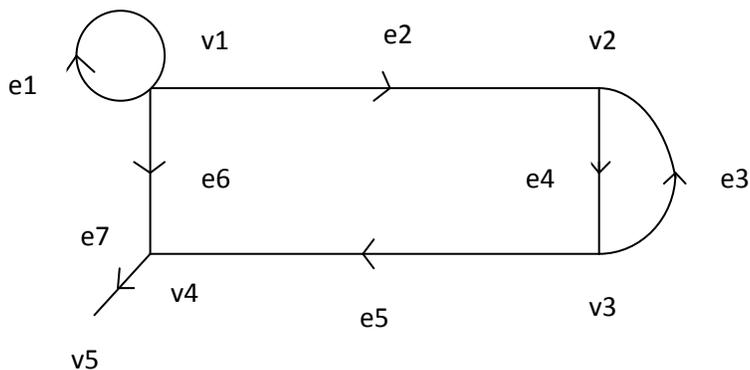
13. Show that the propositional formula (p ∧ q) ∧ (r ∩ s) → p is a tautology for any propositions p, q, r and s.

14. If v {1, 2, 3, 4, 5, 6, 7,} be the universal set and A = { 1, 2, 3, 4} , B= {2, 3, 4, 5} be two subset then find

    i. $A \cup B$

    ii.   AC

    iii. B^c

    iv. $A \cap B$

15. A club has 25 members. How many ways are there to choose four members of the club to serve on an executive committee?
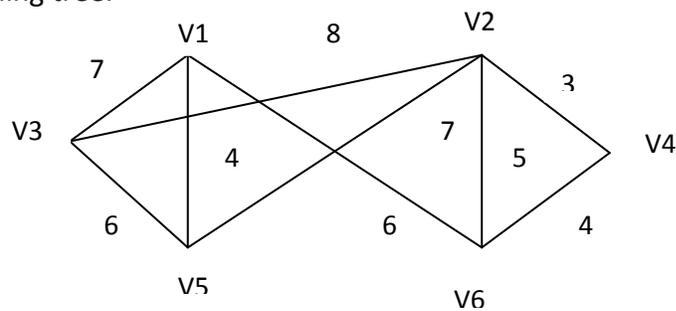
Part C (Marks: 60)

16. Define the following:-

    i.   Homomorphism

    ii.   Monoid and Subgroup

    iii.   Cyclic Group

    iv.   Normal Subgroup

    v.   Symmetric Group

    OR

Give the graph in following figure. Apply Prim's algorithm to obtain the minimal spanning tree.

17. Define the following:-

    i.   Planner Graph

    ii.   Hamilton Graph

    iii.   Euler Graph

    iv.   Bipartiate Graph

v. Isomorphic Graph

vi. Draw the graph which are both Euler and Hamiltonian

vii. Euler but not Hamiltonian

viii. Draw the graph which is neither Hamiltonian nor Euler

ix. Minimally Connect Graph

x. Simply Graph

OR

Test the following arguments:-

(a) If Jack misses many classes due to his illness he will fail in high school.

(b) If he fails in high school then he does not qualify for services.

(c) So if the reads a lot of books then too he is not qualified for services.

18. For non empty sets A, B, C, D prove

   i. $(A \times B) \cap (C \times D) = (A \cup C) \times (B \cup D)$

   ii. $A \times (B \cup C) = (A \times B) \cup (A \times C)$

   iii. $(A \cup B)' = A' \cap B'$

   iv. $(A \cap B)' = A' \cup B'$

   OR

Show that if R and S be Equivalence relational on a set A then $R \cap S$ is also equivalence relation.

Programming in Visual Basic

Part A (Marks: 10)

1. What is IDE?

2. What is the use of Text Box?

3. What is the use of Scroll bar?

4. What are the data-bound controls?

5. What is ADO?

6. What is the file extension name for the project file?

7. What is the file extension name for the standard module file?

8. Write the properties of DATA 1 Control.

9. What is implicit declaration?

10. What is the base class of .net?

Part B (Marks: 10)

11. What is record set?

12. Explain Msgbox () and Inputbox ().

13. Differentiate the following:-

    Load the show method.

14. What is MS Flexgrid Control?

15. What are difference between dispose() and end()?

Part C (Marks: 60)

16. (a) What is interface and give examples? What are the types of authentication?

(b) Write a program to display all records in the datagrid, from MS-Access database table.
Database name:- student.mdb
Table name:- Stu-rec

OR

a) Explain all looping statements in VB with simple example.

b) Write a VB program to process the grades of a student along with the form design.

17. (a) Explain OLEDB and IDE components.

(b) Write a program to calculate Area and Circumference of a square. Take input of radius

from the user.

Area of a square =(side * side)

Circumference= 4*side

(c) Write short note on the following:-

(i) Command Button

(ii) Radio Button

OR

(a)   With the help of an example, write the process of creating a procedure using the insert
procedure dialog box?

(b) Write an event procedure in VB to find the sum and average of the list of 3"n" numbers
given as input. Draw the layout of the user interface also?

18. a) Write short note on the following:-

   i.   Arraylist

   ii.   Combo Box

   iii. Method Overriding

   iv.   Break Points

   v.   Quick Watch

OR

a) What is Data type conversion in VB.NET? Explain about the feature anonymous type.

b) What is ADO.NET and what is the difference between ADO and ADO.NET? Explain with example.

M.Sc. IT (Part I) Examination, 2013

Web Technology

Part A (Marks: 10)

1. What are Cookies and Sessions?

2. Define Firewall.

3. What is E-Commerce?

4. What is a Web Container?

5. Compare post and get method with example.

6. What is a session object considered more secure and advantages than cookies?

7. Describe various features of DOM.

8. What are the differences between web designing and web enabling?

9. What is Java Script's default object?

10. What is the difference between HTML & DHTML?

Part B (Marks: 10)

11. Write a Java Script program that finds the greatest common division (GCD) of two numbers?

12. What are different style sheets we can add to make a web page dynamic?

13. Differentiate between Java Script & Java with example.

14. Write the difference between internal and external scripts with the help of example.

15. Describe the Java Script & Java with example.

Part -C (60 Marks)

16. Explain E-Commerce framework: What is EI? Discuss its Structure?

OR

Write short notes on the following:-

(A) World Wide Web Consortium(W3C)

(B) Mobile Computing

(C) Inline style sheet & external style sheet.

(D) Event handling in Java Style Sheet.

(E) HTML Forms

17. (A) Discuss about Java Script defragging?

(B) Describe Java Script Array object in detail?

OR

Explain in detail DOM Event Handling. Also explain with an example of creating a context menu.

Note: A context menu is one that is shown when the user right clicks anywhere in the document.

18. Write a script using Java Script that checks the given input for a valid name, password length more than 6 characters and age field in the range of 1 to 99. Also write appropriate HTML Code to implement this script.

OR

What is a script language and how many types of scripting in Web Technology? Explain with suitable example.

M.Sc. IT (Part I) Examination, 2013

Data Communication and Networks

Part A (Marks: 10)

1. Explain the term bit rate.

2. Define Cladding.

3. What is pulse spreading?

4. Explain the term Channel bandwidth.

5. What is the purpose of digitization.

6. What is meant by network topology?

7. What do you understand by the term FDDI?

8. What is the concept of circuit switching?

9. Explain the term Full Duplex.

10. What do you understand by guided transmission media?

Part B (Marks: 10)

11. Explain DTE-DTC Interface.

12. Explain EIA-232.

13. Differentiate between DSL and HDLC.

14. What is the difference between Error Detection and Error Correction?

15. Write short note on ATM Layers.

Part C (Marks: 60)

16. What do you understand by Data Communication? Design the architecture for point to point data communication over internet.

OR

Differentiate between virtual redundancy check, longitudinal redundancy check and cyclic redundancy check.

17. a) Explain the ISDN and its architecture, also explain the subscriber access to ISDN.

   b) Differentiate between digital and analog signals, also discuss their application area.

OR

Differentiate between:

a) Circuit switching and packet switching.

b) Link control protocol and network protocol.

18. Show an amplitude modulated waveform. How does it differ from frequency modulated waveform when would you prefer Amplitude Modulated system and why?

OR

Describe all three division of multiple access (channelization) with diagram.

M.Sc. IT (Part I) Examination, 2013

Data Warehousing and Mining

Part A (Marks: 10)

1. What do you understand by Business intelligence?

2. What is a data mart?

3. What is a Data flow diagram?

4. List the key benefits of data warehouse.

5. Define facts and fact tables.

6. What is a dimension table?

7. What do you understand by star flake schema?

8. What is data mining?

9. Define aggregation.

10. What is automatic cluster detection?

Part B (Marks: 10)

11. What are the key differences between operational data and data warehouse?

12. Discuss the role of DSS analyst.

13. Write a note on extract and load process.

14. Discuss the importance of security in data warehouse operations.

15. What is metadata?

Part C (Marks: 10)

16. List and detail the key milestones of a data warehouse project. What is the role of data warehouse project?

OR

Discuss the designing approaches to data warehouse evolution. How does it help in upgrading business decisions?

17. Discuss the key abilities and responsibilities of data warehouse project manager.

OR

Discuss the statement "close co-operation of the operational team and data warehouse team is essential for success of data warehouse project".

18. Write detailed notes on any three of following:-

    a) Multi dimensional query management.
    b) Data warehouse and grooming.
    c) Testing data warehouse
    d) Business Technical and social context of data mining.
    e) Data mining techniques.