MJ2023

ROLL NO:.....

J&K BOARD OF TECHNICAL EDUCATION

Branch : Electronics & Communication Engg / Computer Engg/ IT / Medical Electronics

Class: 4th Semester **Subject : Microprocessor**

Marks : 100 **Time : 3 hours**

Note: Attempt any five Questions.

1. (a) What is Bus .Explain Bus organization with diagram in 8085. 10
   (b) Draw block diagram of 8085 5
   (c) What is function of Program counter & stack pointer . 5

2. (a) Give the function of following pins in 8085.
   i) SID ii) WR iii) HOLD iv) ALE v) AD0 – AD7 10
   (b) How is a stored program executed in 8085. 5
   (c) Write any five features of 8085 5

3. (a) What do you mean by Addressing mode. Explain by Addressing mode in 8085 with examples. 10
   (b) Explain Instruction format with examples. 10

4. (a) Explain concept of Memory Mapped I/O scheme. 8
   (b) Difference between Memory Mapped I/O and I/O Mapped I/O scheme. 6
   (c) Define RAM and EPROM. 6

5. (a) How is Instruction set classified in 8085. Explain with Examples. 8
   (b) Explain Hardware Interrupt in 8085. 6
   (c) Difference between Maskable & Non Maskable nterrupt. 6

6. (a) Explain Synchronous data transfer technique. 10
   (b) what do mean by DMA data transfer scheme. 10

7. (a) Write Assembly language program to multiply any two 8 bit numbers. 8
   (b) What is function of stack. 6
   (c) Define opcode and operand 6

8. (a) Draw block diagram of 8255 PPI Chip and explain function of each block. 10
   (b) what are operating modes of 8255. 10

9. (a) Define
   (i) Machine cycle (ii)T states (iii) fetch cycle (iv) Execute cycle 12
   (b) Explain the function of Program status word (PSW) of 8085. 8

10. write note on any two 10,10
   (a) Assembler (b) Evolution of Microprocessor.
   (c) DeMultiplexing (d) Memory organization

J&K BOARD OF TECHNICAL EDUCATION

SESSION: MJ23 BRANCH: COMPUTER/IT

SUBJECT: DATA STRUCTURES USING C SEM: 4TH MAX MARKS: 100

Note: Attempt Any Five Questions. All Questions Carry Equal Marks.

Q1: a) Explain the concept of Top-Down and Bottom-Up Programming Paradigms. Illustrate using suitable examples.

b) Write a program in C to find the digits of a four-digit number, which is given by the user at run time. The program should return "Invalid Input" if the number is not a four-digit number.

Q2: a) Write a Program in C to find the multiplication of two 3 x 3 arrays. The array elements should be entered by the user at run time.

b) Explain the concept of Searching and Deleting in an array. Illustrate using suitable examples.

Q3: a) What are the differences between Arrays and Linked Lists and also write down the advantages of using Linked Lists over arrays?

b) write down a pseudo code/algorithm for deleting a node from a singly linked list. Illustrate using suitable examples/diagrams.

Q4: a) What is a doubly linked list? Describe its various characteristics.

b) Using Suitable diagrammatic illustration, write down the various steps for adding in a doubly linked list, the elements 5,10, 13, 8 and 7 respectively and then deleting 13, 10 and 8 from it. At each step indicate the contents of the said linked list.

Q5: a) write down a pseudo code/algorithm for inserting a node into a singly linked list. Illustrate using suitable examples/diagrams.

b) Explain Post-Order Traversal in a Tree Data structure. Illustrate Using a suitable example.

Q6: a) a) Explain the concept of a stack data structure. Describe the fundamental operations of a stack and the Last-In-First-Out (LIFO) principle that it follows.

b) Write a C program to implement a stack using an array. Your implementation should include functions to push elements onto the stack, pop elements from the stack, check if the stack is empty, and display the elements of the stack.

Q7: a) Explain the concept of a queue data structure. Describe the basic operations of a queue and the First-In-First-Out (FIFO) principle that it follows.

b) Explain the concept of Recursion. Illustrate using a suitable example.

Q8: a) Define the terms "node," "root," "parent," "child," "leaf," and "subtree" in the context of trees. Provide an example to illustrate each term.

b) What is a Complete Binary Tree. Write a pseudocode/algorithm to check whether a binary tree is complete or not.

Q9: a) Explain the concept of Linear and Binary Search. Illustrate using suitable examples.

b) Write a Program in C to implement Bubble Sort.

Q10: a) What are the differences between Insertion Sort and Bubble Sort Algorithm?

b) Illustrate the implementation of Insertion Sort on the sequence of Numbers 1,9,8,2,5,7,6 for sorting it in ascending order.

J AND K BOARD OF TECHNICAL EDUCATION

MJ23 **Roll No :_____**

Semester: -4th (New) **Branch: - Computer Engineering/IT**

Subject: - OBJECT ORIENTED PROGRAMMING USING C++

Max Marks: - 100 Time: - 3 Hrs.

Note:- Attempt any five questions. All questions carry equal marks.

Q1. (A) Give difference between procedure oriented programming and object oriented programming. (10)

(B) Write short notes on

(I) Polymorphism (II) Abstraction and encapsulation (2x5)

Q2. (A) Explain increment, decrement operators, relational and logical operators used in c++. (10)

(B) Write a program that calculates factorial of a number. (10)

Q3. (A) Write short notes on

(I) Array (II) Structure (2x5)

(B) With examples explain while and for loops. (10)

Q4. (A) What is a class? Create a class with name ABC, reads a number in the object of the class ABC and the display it. (10)

(B) What is constructor? Explain its different types. (10)

Q5. (A) What is friend function? Show how friend functions are used. (10)

(B) Write short note on inline functions. (10)

Q6. What is operator overloading? Write a program to overloads a binary + Operator. (5, 15)

Q7. (A) What is inheritance? Explain its various types. (10)

(B) Write a program to show the use of single inheritance. (10)

Q8. What is hybrid inheritance? Explain the concept of virtual base class.(20)

Q9. Write notes on.

(A) Virtual functions (B) Function binding (2x10)

Q10. (A) Explain different operations that can be performed on a file. (10)

(B) What is the purpose of file streams? How do they help in reading from or writing to files? (10)

Semester: - 4th (New Scheme) Roll No. 45583

J&K BOARD OF TECHNICAL EDUCATION

Branch: - Information Technology/Computer Time: - 3 Hrs.

Subject: - Computer Networks. Max Marks: - 100

Note: - Attempt any five questions.

Q1. Explain:
(A)Peer to Peer Network. (B) LAN
(C)MAN (D) WAN (4 x 5 marks)

Q2. (A) Explain OSI reference model in detail? (10 marks)
(B) Describe in detail the need and functions of physical and data link layer? (10 marks)

Q3. (A) What do you understand by physical and logical addressing? Explain? (10 marks)

(B)What is sub-netting and super-netting? (10 marks)

Q4. (A) What is an IP address? What are the four types of IP address? Explain with examples? (10 marks)
(B)Explain: Network IPX/SPX in detail? (10 marks)

Q5. (A) What are the electrical specifications for the ARC NET. Explain? (10 marks)
(B) Explain the features of VSAT. (10 marks)

Q6. Explain the various network connecting devices:
A) Hubs. B) Modems
C) Repeaters D) Multiplexers (4 x 5 marks)

Q7. (A) What do you mean by network printing? (10 marks)
(B) Explain Traditional Ethernet? (10 marks)

Q8. (A) Explain RAID management and mirroring in detail? (10 marks)
(B) What is CRYPTOGRAPHY? (10 marks)

Q9. (A) What do you mean by troubleshooting process? (10 marks)
(B) Explain: PING, IFCONFIG (10 marks)

Q10 Write short note on:
(A) WIFI. (10 marks)
(B) Server management. (10 marks)

SESSION: MJ- 23 ROLL NO:.....

J&K BOARD OF TECHNICAL EDUCATION

Semester: 4th **Branch: ALL**

Subject: G.S & E.D **Scheme: New**

Time: 3 Hours **M.M.: 100**

Note: Attempt any five questions.

Q1(a) Explain the term self-concept. How it is developed? (10)

(b) Explain the lifelonglearning and its importance. (10)

Q2. What is trait? Explain different types of traits. (10)

Q3. What are the stages of team development? Explain briefly. (20)

Q4. Describe briefly four phases of task. (20)

Q5. Explain different methods of problem solving. (20)

Q6(a) What are the environmental factors that affect entrepreneurship? (10)

(b) Give a list of qualities a good entrepreneur must possess. (10)

Q7. Explain briefly about NSIC schemes. (20)

Q8. What is meant by small scale industry? What is the importance of small-scale industries? (20)

Q9. Define sale forecasting. Explain different methods used for forecasting the demand of a product. (20)

Q10. What is meant by project report? Explain the contents of a project report. (20)

Semester: - 4th (New Scheme) Roll No.....

J&K BOARD OF TECHNICAL EDUCATION

Branch: - Information Technology/Computer Time: - 3 Hrs.

Subject: - Software Engineering. Max Marks: - 100

Note: - Attempt any five questions.

Q1. Explain Software development life cycle in detail? (20 marks)

Q2. (A) What is Waterfall model? Describe its advantages and disadvantages. (10 marks)
(B) What is prototyping model? Describe its advantages and disadvantages. (10 marks)

Q3. Explain:
(A) Mc Cabe's complexity. (B) Halstead software science. (2 x 10 marks)

Q4. Write short notes on:
(A) Software scope (B) Software Resources. (2 x 10 marks)

Q5. What is organizational structure? Compare and contrast between functional format and project format. (20 marks)

Q6. What is COCOMO model? Explain in detail. (20 marks)

Q7. Explain in detail the concept of SRS? What are the characteristics of a good SRS? (20 marks)

Q8. (A) What is structures analysis? Explain the concept of Data Flow Diagrams. (10 marks)
(B) What is user documentation? Explain its various constituents. (10 marks)

Q9. (A) Explain the concept of black box and white box testing. (10 marks)
(B) Explain briefly the concepts of walkthrough and inspection? (10 marks)

Q10 (A) Explain briefly the concept of software quality. (10 marks)
(B) Write short note on ISO 9000 series? (10 marks)