

(Part 1 (30 marks). This part consists of compulsory short answer questions , Part 2 (70 marks) this part is divided into 3 sections A,B and C students are requested to answer 3 questions out of 4 from section A, & 2 questions out of 3 in section B & C. Each question carries 10 marks)

**Part I (30 marks)**

1. Why D-flip-flop is known as Delay flip-flop? [2]
2. What are jumping statements (break & continue)? [2]
3. Write 2 difference between Half & Full adder [2]
4. List 4 different processors used in computer? [2]
5. What is tautology, contradiction, contingencies? [2]
6. Convert the following octal to hexadecimal [4]

1. 26
2. 44
3. 57
4. 91

- Define the following commands of MSDOS [4]

1. COPY
2. TYPE
3. COMP
4. XCOPY

- Convert the following fractional number to binary [4]

1. 12.3
2. 5.45
3. 14.5
4. 23.7

- Convert the following hex into decimal [4]

1. 8B
2. BAD
3. ACC
4. BE

- Solve the following [4]

1.  $(A1F)_6 = (?)_{10}$
2.  $(1010110)_2 = (?)_8$
3.  $(FACE)_{16} = (?)_2$
4.  $(721235)_8 = (?)_2$

## Part II (70 marks)

### Section A(30 marks)

1. Explain the following addressing mode [10]
  - Immediate addressing
    - PC relative addressing
    - Register direct addressing
  - Explain the importance of each functional unit inside your computer i.e. CPU, ALU, MU, CU, microprocessor [10]
  - Define the following terms [10]
    - Operating system as I/O manager
    - Operating system as device manager.
  - Explain Full adder with help of truth table, logic diagram and equation [10]

### Section B(20 marks)

1. Answer the following
  - Calculate address of a [2][4] for array of size a [4][5], whose word size is 2 bytes, and base address is 1024. The array is stored in column wise matrix. [2]
  - Explain terms related to software piracy [8]
    - Intellectual property
    - Trade mark
    - Copy right
    - patent
2. Explain the following terms related to JAVA [10]
  1. Define recursive function
  2. Function overloading as Polymorphism
  3. What is buffered reader, explain how is it used in program
  4. Mention the importance of public static void main(String args[])
  5. What is function overriding?
3. Explain Booting process in detail. With each phase described in depth, with the list of files loaded in computer [10]

### Section C (20 marks)

1. Write a program explaining recursive functions, where function name is Fact which returns factorial of N, & N is a parameter of the function [10]
2. Write a program explaining function overriding, which defines a class Shape from which class rectangle & Circle inherits. The function called area () is defined inside all classes with same parameter. Calculate area of circle & rectangle. [10]
3. A house has to be renovated, for that 2 things are to be done, which are as follows [10]

1. Square shaped marble flooring of size  $x$ , & floor covers area of 500sq/feet
2. Wall has to be paneled which is of  $L$  length,  $B$  Breadth , the wall covers area of 1500sq/feet

Find number of marbles & panels required using function called area. Use function overloading method.