Printed Page:- Subject Code:- AEC0404

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - CARRY OVER THEORY EXAMINATION - SEPTEMBER 2022

Subject: Microprocessor and Microcontroller

Time: 3 Hours Max. Marks: 100

General Instructions:

1. The question paper comprises three sections, A, B, and C. You are expected to answer them as directed.
2. Section A - Question No- 1 is 1 mark each & Question No- 2 carries 2 mark each.
3. Section B - Question No-3 is based on external choice carrying 6 marks each.
4. Section C - Questions No. 4-8 are within unit choice questions carrying 10 marks each.
5. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A 20

1. Attempt all parts:-

1-a. The BOOT sector files of the system are stored in_____. (CO1) 1

(a) harddisk

(b) ROM

(c) RAM

(d) Fast solid state chips in the motherboard

1-b. Which is a 8 bit Microprocessor? (CO1) 1

(a) Intel 4040

(b) Pentium – I

(c) 8088

(d) Motorala MC-6801

1-c. What is stored by register? (CO2) 1

(a) data

(b) operands

(c) memory

(d) None of these

1-d. Which of the following is not a special function register? (CO2) 1

(a) Program counter

(b) Instruction Register

(c) Accumulator

(d) Stack pointer

1-e. MOV A, @ R1 will _____. (CO3) 1

(a) copy R1 to the accumulator

(b) copy the contents of memory whose address is in R1 to the accumulator

(c) copy the accumulator to the contents of memory whose address is in R1

(d) copy the accumulator to R1

1-f. Bit-addressable memory locations are_____. (CO3) 1

(a) 10H through 1FH

(b) 20H through 2FH

(c) 30H through 3FH

(d) 40H through 4FH

1-g. How many instruction sets does ARM have? (CO4) 1

(a) 1

(b) 2

(c) 3

(d) 4

1-h. Cortex-M3 processor consist of _____ pipeline. (CO4) 1

(a) two stages

(b) three stages

(c) Four stages

(d) five stages

1-i. The ARM and thumb instruction set and java byte codes are _____ instruction set. (CO5) 1

(a) Java

(b) Jazelle

(c) ARM

(d) None of the above

1-j. Which one of the following is NOT the extend and reverse ordering instructions? (CO5) 1

(a) REVSH

(b) MUL

(c) SXTB

(d) REV

2. Attempt all parts:-

2.a. What is SRAM and DRAM? (CO1) 2

2.b. Name 5 different addressing modes? (CO2) 2

2.c. Draw the memory organization of 8051. (CO3) 2

2.d. What do you understand by interrupt? (CO4) 2

2.e. Explain MOV instruction with examples. (CO5) 2

SECTION B 30

3. Answer any five of the following:-

3-a. What do you mean by Harvard and Von Neumann architecture? (CO1) 6

3-b. Indicate the source and destination of data for each of the following cycles: (CO1) 6

i. Memory Read

ii. Memory write

iii. IO read

iv. IO write

3-c. Write a Program to Perform the following functions and verify the output steps: (CO2) 6

a. Load the number 5CH in register D

b. Load the number 9E H in register C

c. Increment the Contents of register C by one.

3-d. Write a program for displaying the sum of two no if sum is smaller than FFH otherwise display 01H using 8085. (CO2) 6

3.e. Draw the functional block diagram of 8051 microcontroller and explain. (CO3) 6

3.f. What are pipeline hazards? How it can be removed in ARM Cortex M0 microprocessor? (CO4) 6

3.g. Discuss about the term endianness? Discuss its types. Which endianness is followed by ARM Cortex M0 processor? (CO5) 6

SECTION C 50

4. Answer any one of the following:-

4-a.	Write short note on: (CO1) a. RAM b. ROM c. Cache Memory d. Virtual Memory	10
4-b.	A digital computer has a common bus system for 16 registers of 32 bits each. The bus is constructed with multiplexers. (CO1) a. How many multiplexers are there in the bus? b. What size of multiplexers are needed?	10

5. Answer any one of the following:-

5-a.	What is RIM and SIM? Explain with their status flags. (CO2)	10
5-b.	Write a program for sum of series of 100 bytes stored from location 2000H using 8085. (CO2)	10

6. Answer any one of the following:-

6-a.	Sketch the interface of a 16ch x 1line LCD to the 8051 microcontroller. Write an 8051 assembly program segment to display any Logo. (CO3)	10
6-b.	Generate a square wave of 50% duty cycle on P1.5 with the help of Timer 0. (CO3)	10

7. Answer any one of the following:-

7-a.	What do you understand by memory mapping in reference to ARM Cortex Family microprocessors? How it can be implemented? (CO4)	10
7-b.	What are the blocks available in architecture of ARM Cortex M0 microprocessor? Discuss in detail with a neat diagram. (CO4)	10

8. Answer any one of the following:-

8-a.	Briefly explain about different data operations used in ARM processor. (CO5)	10
8-b.	Mention the program flow control instructions with suitable examples. (CO5)	10