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Subject Code:- ACSE0405

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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 - APRIL 2023

Subject: Microprocessor

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C.** It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. 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. Which of the following is a type of microprocessor? (CO1) 1
- (a) CISC
 - (b) RISC
 - (c) EPIC
 - (d) All of the mentioned
- 1-b. The directive that directs the assembler to start the memory allotment for a particular segment/block/code from the declared address is....(CO1) 1
- (a) GROUP
 - (b) OFFSET
 - (c) ORG
 - (d) LABEL
- 1-c. In 8085, HLT opcode means: (CO2) 1
- (a) Remain idle for 10 seconds
 - (b) Remain idle for 0.1 seconds

- (c) End of Program
- (d) none of above
- 1-d. In which of these modes, the immediate operand is included in the instruction itself? (CO2) 1
- (a) register operand mode
- (b) immediate operand mode
- (c) register and immediate operand mode
- (d) none of the mentioned
- 1-e. The weights used in Binary coded decimal code are (CO3) 1
- (a) 4,2,1
- (b) 8,4,2,1
- (c) 6,4,2,1
- (d) 2,1
- 1-f. What does ASCII stand for? (CO3) 1
- (a) American Standard Code for Information Interchange
- (b) American Scientific Code for Information Interchange
- (c) American Scientific Code for Interchanging Information
- (d) American Standard Code for Interchanging Information
- 1-g. The 8085 microprocessor has two instructions for data transfer between the processor and the I/O devices. (CO4) 1
- (a) Rx & Tx
- (b) DIN & DOUT
- (c) IN & OUT
- (d) MVI & STA
- 1-h. Which interrupt in 8085 microprocessor is Non-Maskable? (CO4) 1
- (a) RST 5.5
- (b) RST 7.5
- (c) TRAP
- (d) Both (a) and (b)
- 1-i. Which of the following is not a mode of data transmission? (CO5) 1
- (a) simplex
- (b) duplex
- (c) semi duplex

- (d) half duplex
- 1-j. If the data transmission takes place in either direction, but at a time data may be transmitted only in one direction then, it is.....(CO5) 1
- (a) simplex mode
- (b) duplex mode
- (c) semi duplex mode
- (d) half duplex mode

2. Attempt all parts:-

- 2.a. What are machine language and assembly language programs? (CO1) 2
- 2.b. What is an instruction set? (CO2) 2
- 2.c. Find out the 2's complement of 11001011? (CO3) 2
- 2.d. What is memory mapped I/O? (CO4) 2
- 2.e. What is asynchronous data transfer? (CO5) 2

SECTION B

30

3. Answer any five of the following:-

- 3-a. With neat PIN diagram explain the various signals of 8085 microprocessor. (CO1) 6
- 3-b. Why the lower order address bus is multiplexed with data bus? How they will be de-multiplexed?(CO1) 6
- 3-c. Explain the following instructions: CALL, DAD B, XTHL, STAX B, CMP M (CO2) 6
- 3-d. Explain the various addressing modes of 8085 microprocessor with example. (CO2) 6
- 3.e. What are the similarities and differences between CALL/RET and PUSH/POP instructions.(CO3) 6
- 3.f. How would you describe vectored and non-vectored interrupts with examples? (CO4) 6
- 3.g. Explain the different addressing modes of 8086. (CO5) 6

SECTION C

50

4. Answer any one of the following:-

- 4-a. Draw and explain the architecture of 8085 microprocessor.(CO1) 10
- 4-b. Describe RISC and CISC microprocessors and differentiate them. (CO1) 10

5. Answer any one of the following:-

- 5-a. Write an assembly language program to add two 8-bit hexadecimal numbers. 10

Also explain it with flowchart.(CO2)

- 5-b. Write an assembly language program to multiply two 8 bit numbers. Also explain it with flowchart.(CO2) 10

6. Answer any one of the following:-

- 6-a. Write a program for BCD addition of two 8-bit numbers and explain it with flowchart and example.(CO3) 10
- 6-b. Write an assembly language program for Binary to ASCII Code Conversion. Also explain it with flowchart.(CO3) 10

7. Answer any one of the following:-

- 7-a. Explain the working of seven segment display with the help of block diagram.(CO4) 10
- 7-b. Draw block diagram of 8259 PIC and explain Initialization Command Words (ICWs) and Operational Command Words(OCWs).(CO4) 10

8. Answer any one of the following:-

- 8-a. Explain how the serial data transfer can be performed using 8251 USART.(CO5) 10
- 8-b. Draw the architecture of DMA controller 8237 and explain it.(CO5) 10