

Code : 031611/031511

B.Tech 6th Semester Special Exam., 2020

MICROPROCESSOR AND ITS APPLICATION

Time : 3 hours

Full Marks : 70

Instructions :

- (i) The marks are indicated in the right-hand margin.
- (ii) There are **NINE** questions in this paper.
- (iii) Attempt **FIVE** questions in all.
- (iv) Question No. 1 is compulsory.

1. Choose the correct alternative (any seven) :

2×7=14

- (a) Intel 8085 microprocessor came in the year
 - (i) 1971
 - (ii) 1973
 - (iii) 1975
 - (iv) None of the above
- (b) 8259 is a
 - (i) programmable peripheral interface

(c) The microprocessor 8085 has ____ basic instructions and ____ opcodes.

- (i) 80,246
- (ii) 70,346
- (iii) 70,246
- (iv) 80,346

(d) Which one is the non-maskable interrupt of 8085?

- (i) INTR
- (ii) TRAP
- (iii) RST 7.5
- (iv) None of the above

(e) Which is the correct order on time scale?

- (i) Instruction Cycle > Machine Cycle > T State
- (ii) T State > Machine Cycle > Instruction Cycle
- (iii) Machine Cycle > T State > Instruction Cycle
- (iv) None of the above

(3)

- (f) How many flags does 8085 microprocessor has?
- (i) 4
 - (ii) 5
 - (iii) 6
 - (iv) 3
- (g) What is incorrect for 8086 processor?
- (i) 8086 is 16-bit processor
 - (ii) Data bus is 16-bit wide
 - (iii) Address bus is 32-bit wide
 - (iv) It has instruction for multiplication operation
- (h) The RST instruction of 8085 is
- (i) 1 byte instruction
 - (ii) 2 byte instruction
 - (iii) 3 byte instruction
 - (iv) None of the above

(Turn Over)

(4)

- (i) 8255 has
- (i) one mode of operation
 - (ii) two mode of operation
 - (iii) three mode of operation
 - (iv) four mode of operation
- (j) The output of XRA A instruction for any value of A is
- (i) 00 H
 - (ii) FF H
 - (iii) Any of the two on some condition
 - (iv) None of these two
2. (a) Discuss in detail the register organization of 8085 microprocessor. 7
- (b) Categorize the instructions of 8085

(5)

3. (a) Write the complete instruction, size of instruction, number of machine cycles and addressing mode for the instruction mnemonics given below : 8

XRA, STAX, MOV & DCX

- (b) Explain the steps involved in "Memory Read" machine cycle. Also draw the timing diagram of this machine cycle for MVI instruction. 6

4. (a) Differentiate between the following : 8

(i) Instruction Cycle and Machine Cycle

(ii) SUB and CMP instructions

- (b) Write a detailed note on conditional jump instructions. 6

5. Write an assembly language program for performing multiplication of two 8-bit numbers available in memory. Store the result in memory. Consider the case where result is 16-bit. 14

(6)

6. (a) Explain the control word configuration of 8255. Also draw the expanded block diagram of 8255 architecture. 10

- (b) Explain the DMA operation with the actual handshaking signal involved in. 4

7. (a) Define each of the following terms : 5
microcomputer, microprocessor, microcontroller, assembler, loader and linker.

- (b) Explain the working of 8251 USART. Also draw the suitable diagram. Explain the priority resolver and its modes of operation. 9

8. (a) Explain why internal architecture of 8086 is divided into BIU and EU. Also give detailed working of these two components. 8

9. (a) Explain the instructions STD, SAR, CWD and CLI. 4
- (b) List the status flags of 8086 microprocessor architecture. 5
- (c) Explain different types of register in 8086 microprocessor architecture. 5
