WEST BENGAL STATE UNIVERSITY

B.Sc. Honours/Programme 4th Semester Examination, 2021

ELSHGEC04T/ELSGCOR04T-Electronics (GE4/DSC4)

MICROPROCESSOR AND MICROCONTROLLER

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

GROUP-A

1.   Answer any *five* questions from the following: $2 \times 5 = 10$

(a) Write two different instructions by which we can clear accumulator in 8085 microprocessor.

(b) Why the lower byte addresses bus (A_0-A_7) and data bus (D_0-D_7) are multiplexed?

(c) Write a program to exchange the data of PSW and HL pair of 8085.

(d) Describe the (status) flag register of 8085.

(e) Mention the size of DPTR and Stack Pointer in 8051 microcontroller.

(f) How many I/O ports placed in microcontroller 8051? Give their names.

(g) What is program status word of 8051?

(h) Mention the size of internal RAM and ROM of 8051 microcontroller.

GROUP-B

Answer any *six* questions from the following $5 \times 6 = 30$

2.   Design a memory system for 8085 such that it should contain 2 KB of EPROM and 2 KB of RAM with starting address 0000H and 6000H.   5

3.   Discuss the classification of the instruction sets of 8085 microprocessor with suitable examples.   5

4.   Draw the timing diagram of the instruction - MOV A, B.   5

5. (a) What is the function of ALE signal?   2+2+1

(b) What is the function of S_0 and S_1 status signals?

(c) How many I/O ports can be accessed by 8085 microprocessor?

6. Suppose [AX] = 85H and [BX] = 64H, [SP] = 2000H. What will be the value of AX, BX and SP after the following instructions are executed?   5

    (i) PUSH AX and   (ii) POP BX.

7. Distinguish between memory mapped I/O and I/O mapped I/O.   5

8. (a) Write the instructions for 8051 microcontroller, to move the value 35H into register A and the value 3FH into register B, then add them together.   2+3

   (b) Add the two numbers 56H and 95H, and show how the CY, AC and P flags are affected in connection to 8051 microcontroller.

9. Write short notes: $2\frac{1}{2} + 2\frac{1}{2}$

    (a) Flag register of 8051 microcontroller

    (b) RAM memory space allocation in 8051 microcontroller.

10. Briefly explain different unconditional jump instructions of 8051.   5

11. Explain the Data Transfer instructions and Program Control instructions in 8051 microcontroller.   5

12. Compare Microprocessor and Microcontroller.   5

   N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

——×——