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C16-AEI-503

**6611**

**BOARD DIPLOMA EXAMINATION, (C-16)**

**JUNE/JULY—2022**

**DAEI - FIFTH SEMESTER EXAMINATION**

**MICROCONTROLLERS AND APPLICATIONS**

*Time : 3 hours ]*

*[ Total Marks : 80*

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**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Distinguish between microprocessors and microcontrollers in any three aspects.
2. State the need of timers/counters in 8051 microcontroller.
3. List the input/output ports of 8051
4. Define fetch cycle, execution cycle and instruction cycle of 8051 microcontroller.
5. Differentiate machine level programming and assembly level programming in any three aspects.
6. Draw the format of a two-byte instruction of 8051 microcontroller.
7. Draw flow chart for multiplication of two 8-bit numbers.
8. Define stack and stack pointer.
9. List any three interfacing peripheral ICs.
10. List the operating modes of 8255.

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## PART—B

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Draw and explain the functional block diagram of 8051 microcontroller. 10
12. Explain internal memory and external memory organization of 8051 microcontroller. 10
13. Explain the addressing modes of 8051 microcontroller. 10
14. List and explain any five logical group instructions. 10
15. Write a program to perform multi byte addition. 10
16. (a) Explain PUSH and POP instructions. 4  
(b) Explain the sequence of program when a subroutine is called and executed. 6
17. Draw and explain the functional block diagram of 8257-DMA controller. 10
18. Explain the printer interface using 8051 microcontroller. 10

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