



C09-AEI-403

3413

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2017

DAEIE—FOURTH SEMESTER EXAMINATION

MICROCONTROLLERS AND ITS APPLICATIONS

Time : 3 hours]

[Total Marks : 80

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. List any three differences between microprocessors and micro-controllers.
2. State the function of a PSW register of 8051 microcontroller.
3. List any three features of 8051 microcontroller.
4. List the instructions formats of 8051 microcontroller.
5. List any three addressing modes of 8051 microcontroller.
6. Distinguish between machine cycle and T-state.
7. Define a subroutine and list any two uses of it.
8. List the conditional call and unconditional call instructions.
9. Define interfacing and list any two interfacing devices.
10. Draw the interfacing diagram of traffic light controller with 8051 microcontroller.

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PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the 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.** (a) Draw and explain the timing diagram of memory read operation of 8051. 4+4
(b) Define mnemonics. 2
- 13.** Explain the following instructions : 2×5=10
(i) MOV direct, A
(ii) SUBB A, @ Ri
(iii) ADDC A, # data
(iv) DIV AB
(v) RLC A
- 14.** Explain how information is exchanged between the program counter and the stack and identify the stack pointer register when a subroutine is called. 10
- 15.** Write any assembly language program to find the largest number in an array. 10
- 16.** (a) Explain about PUSH and POP instructions in a program. 4+4
(b) Define a subroutine. 2
- 17.** Draw and explain the functional block diagram of DMA controller 8257. 4+6
- 18.** Draw and explain the interfacing of seven-segment display with 8051 microcontroller. 4+3+3
