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BOARD DIPLOMA EXAMINATION, (C–14)
OCT/NOV—2017
DECE—FIFTH SEMESTER EXAMINATION

MICROCONTROLLER 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 IC numbers of any three ADC chips.

2. List any three features of DAC 0808.

3. Find the checksum byte for the hexadecimal data 19H, 5AH, 46H and 68H.

4. Find the capacity of a memory chip which as 14 address pins and 8 data pins.

5. List any three advantages of LCDs.

6. State the function of RS and R/$\overline{W}$ pins of module LCD.

7. Write an assembly language program to turn ON the oscillator of DS12887 RTC for the first time.

8. State the function of AS and SQW pins of DS12887 RTC.

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9. What is the need of Opto-couplers for interfacing?

10. Why do we place a driver between the microcontroller and the stepper motor?

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PART—B   10×5=50

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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 interfacing of serial ADC 0831 chip to 8051.   5+5

12. Explain memory address decoding using 74LS138 decoder.   10

13. *(a)* Explain the function of SDA, SCL and WP pins of serial EEPROM 24C02.   6

    (b) Draw the interfacing diagram of 24C02 with 8051.   4

14. Describe key bouncing problem and de-bouncing methods.   4+6

15. Write an assembly language program to display the message 'MCA' on an LCD interfaced to 8051 microcontroller.   10

16. *(a)* List the features of DS12887 RTC.   5

    (b) Explain the function of control register A of DS12887RTC.   5

17. Draw and explain the interfacing of DS12887 RTC to 8051 microcontroller.   5+5

18. Draw a diagram to interface 8051 with relay to drive a lamp and write an assembly language program to turn the lamp ON and OFF continuously with some time delay.   5+5

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