

G 1096

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Seventh Semester

Branch : Electronics and Communication Engineering/Applied Electronics and Instrumentation Engineering

MICROCONTROLLER BASED SYSTEM DESIGN (LA)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A

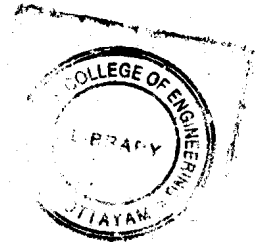
Answer all questions.

Each question carries 4 marks.

1. Give the architectural floor view of PLA.
2. List the important advantages offered by FPGA based design.
3. Discuss and comment on the program and data memories of 89 C 2051 and 89 C 51 ?
4. Comment on "All the 89 C 2051 programs may not work on 89 C 51 and all 89 C 51 programs may not work on 89 C 2051 " Justify your answer with examples.
5. Which is the fastest and which is the slowest ADC ? Give reasons.
6. Compare the merits and demerits of ladder DAC with weighted resistor type.
7. What is SPI bus ? How it can be used for I/O port expansion ?
8. Give the standard features of RS 232.
9. Give the features of DS 1232 watch dog timer.
10. Explain the principle of power factor measurement.

(10 × 4 = 40 marks)

Turn over



Part B*Answer all questions.**Each full question carries 12 marks.*

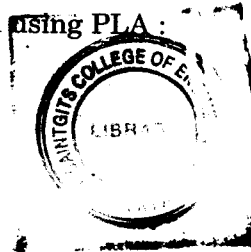
11. Show the implementation of the following function using PLA :

$$f_0 = \sum m (0, 1, 4, 6)$$

$$f_1 = \sum m (2, 3, 4, 6, 7)$$

$$f_2 = \sum m (0, 1, 2, 6)$$

$$f_3 = \sum m (2, 3, 5, 6, 7)$$



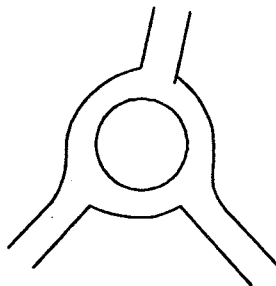
The above implementation should make use of minimum number of rows in the PLA structure.

Or

12. With a circuit diagram, explain the working of a dual port RAM ? How the data is written into and read from it ?
13. With a neat diagram, explain the architecture of 89 C 2051 ? Explain the function of each unit.

Or

14. Draw the microcontroller based circuit for a traffic light control system.



for a junction with three roads meeting as shown in figure. Assume each road can have an accumulation of upto 8 vehicles.

15. With neat diagrams, explain the working of sigma delta ADC ? show how it can be interfaced to 8951 ?

Or

16. Explain the working of an optically isolated triac. Explain its interface with 8951 of a power control circuit.
17. With the help of necessary diagrams, explain 2-wire serial EEPROM and 3-wire serial EEPROM? Explain the read/write operations.

Or

18. Describe how a microcontroller can be interfaced to a PC printer port?
19. Design a real time clock using microcontroller.

Or

20. The square pulses from a shaft encoder of a motor need to be counted to determine the rate at which the shaft is spinning. Explain how 8951 can be used for this applications?

(5 × 12 = 60 marks)

