

G 1301

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Reg. No.....

Name.....



**B.TECH. DEGREE EXAMINATION, MAY 2015**

**Seventh Semester**

Branch : Applied Electronics and Instrumentation/Electronics and  
Communication Engineering

**MICROCONTROLLER BASED SYSTEM DESIGN (LA)**

(Old Scheme—Prior to 2010 Admissions)

[Supplementary]

Time : Three Hours

Maximum : 100 Marks

**Part A**

*Answer all questions.*

*Each question carries 4 marks.*

1. Bring out the differences between various logic families.
2. Draw the basic block diagrams of a PAL and PLA.
3. Draw the circuit and o/p expression of a single slope ADC.
4. What is the significance of a digital to analog converter ? What are the different types of DACs available ? Draw the circuit of a 3 bit DAC of any two types.
5. Compare RS 232 and RS 485 buses.
6. Discuss the I<sup>2</sup>C bus standard.
7. List the features of DS 1232 watchdog timer.
8. Discuss the measurement of frequency and phase angle.
9. Explain the steps involved in design of a position control system.
10. Discuss about L293 motor driver.

(10 × 4 = 40 marks)

**Part B**

*Answer all questions.*

*Each question carries 12 marks.*

11. With a neat schematic realise the two expressions given  $f_1(x, y, z) = \sum m(1, 2, 3, 7)$  and  $f_2(x, y, z) = \sum m(0, 1, 2, 6)$  using PLA of  $3 \times 4 \times 2$  size and draw the PLA table.

Or

12. Explain dual port RAM and FPGA arrays.

Turn over

13. With a neat diagram, explain the architecture of 89c2051 microcontroller. Also compare it with 89C51.

*Or*

14. Discuss how alphanumeric LCD display can be interfaced to a microcontroller, with the help of necessary diagram.
15. With a neat diagram, explain the working of a dual slope ADC. What are the limitations of a single slope ADC and how they are overcome by dual slope ADC.

*Or*

16. With a neat circuit/schematic diagram, explain the working of a R-2R ladder DAC.
17. What is RS232 ? Compare all serial bus standards.

*Or*

18. Write an assembly language/C language programming for interfacing PCI bus.
19. Draw and explain the interfacing of stepper motor to a microcontroller. Write an assembly language/ C language program to rotate it in clockwise direction.

*Or*

20. Discuss the working of DS1302 RTC.

(5 × 12 = 60 marks)

