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B.TECH. DEGREE EXAMINATION, MAY 2014

Seventh Semester

Branch : Electronics and Communication Engineering / Applied Electronics and Instrumentation

MICROCONTROLLER BASED SYSTEM DESIGN (L A)

(Old Scheme – Prior to 2010 Admissions)

[Supplementary]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 4 *marks.*

1. What is the basic architecture of a PLA? How is the capacity of PLA specified?
2. What are the features of FPGA?
3. Discuss the features of Embedded C compiler.
4. Show how a seven segment display can be interfaced to a microcontroller.
5. Explain how Analog to Digital converters are classified.
6. Show how a DAC can be interfaced to the microcontroller.
7. Discuss about the Serial Bus standards.
8. Compare the various Serial communication standards.
9. Explain the function of a "Watchdog timer".
10. Discuss the measurement of power factor, using a microcontroller.

(10 × 4 = 40 marks)

Part B

Answer **all** *questions.*

Each question carries 12 *marks.*

11. (a) What are the various logic families?

    (b) Compare the features of PLA, PAL and GAL.

(6 + 6 = 12 marks)

Or

Turn over

12. (a) Discuss a dual port RAM.

(b) Explain the realization of PAL with flip-flop.

(5 + 7 = 12 marks)

13. (a) Compare the architecture of 89 C 2051 and 89 C 51 microcontrollers.

(b) Write a short note on memory models.

(8 + 4 = 12 marks)

Or

14. (a) Design a traffic light control system using a microcontroller.

(b) Discuss the circuit diagram and necessary algorithm.

(7 + 5 = 12 marks)

15. (a) Discuss the interfacing of an Analog to Digital Converter with a microcontroller.

(b) What are the typical ICs used for ADC.

(8 + 4 = 12 marks)

Or

16. (a) Design a temperature control system using a microcontroller.

(b) Discuss the Interfacing program using C.

(8 + 4 = 12 marks)

17. (a) Compare I^2C bus with SPI bus.

(b) Explain the features of 3 wire serial EEPROM.

(6 + 6 = 12 marks)

Or

18. (a) Draw the interfacing diagram of MAX 232 line driver/receiver to a microcontroller.

(b) What is a Universal Serial Bus? Explain.

(7 + 5 = 12 marks)

19. (a) Show how a matrix keyboard can be interfaced to a microcontroller.

(b) Explain the principle of d.c. motor speed control with a microcontroller.

(6 + 6 = 12 marks)

Or

20. (a) Discuss how frequency can be measured using a microcontroller.

(b) Show the interfacing of a DS 1302 Real time clock.

(7 + 5 = 12 marks)

[5 × 12 = 60 marks]