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Question Paper Code : 51455

B.E/B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Fifth Semester

Electronics and Communication Engineering

EC 2304/EC 54 - MICROPROCESSORS AND MICROCONTROLLERS

(Regulations 2008)

(Common to PTEC 2304 – Microprocessors and Microcontrollers for BE (Part-Time)

ECE – Fifth Semester – Regulations 2009)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. When the 8086 processor is in minimum mode and maximum mode ?
2. Define Segment Override Prefix.
3. What is an assembler ?
4. What is virtual addressing mode ?
5. State the importance of sample-and-hold circuit.
6. List the applications of Programmable Interval Timer.
7. What happens in power down mode of 8051 microcontroller ?
8. How the selection of particular register bank is done in 8051 ?
9. Write about the design steps involved in using microcontroller for Stepper motor.
10. State the significance of using microprocessors in interfacing traffic limit control.

PART – B (5 × 16 = 80 Marks)

11. (a) (i) Explain the internal hardware architecture of 8086 microprocessor with neat diagram. (12)

(ii) Write briefly about the Direct Memory Access. (4)

OR

(b) (i) Explain the external memory addressing in 8086. (8)

(ii) Discuss the interrupts types of 8086 microprocessor. (8)

12. (a) Briefly explain the addressing modes of 8086 with example. (16)

OR

(b) (i) Briefly explain the arithmetic group of instructions available in 8086 microprocessor. (8)

(ii) Briefly explain the assembler directives of 8086. (8)

13. (a) With neat block diagram explain the 8255 Programmable Peripheral Interface and its operating modes. (16)

OR

(b) Explain the 8279 Keyboard/Display controller with neat block diagram. (16)

14. (a) (i) Explain the architecture of 8051 microcontroller with neat diagram. (10)

(ii) Explain the TMOD function register and its timer modes of operations. (6)

OR

(b) (i) Write a brief note on external data move operations in 8051. (6)

(ii) Write an 8051 assembly language program to add three BCD numbers stored in internal RAM locations 25 H, 26 H and 27 H and put the result in RAM locations 31 H (MSB) and 30 H (LSB). Use register R₀ to store the intermediate result. (10)

15. (a) (i) Draw a circuit schematic for washing machine control using 8051. (8)

(ii) Explain in detail about the RTC Interfacing using 12C Standard using microcontroller. (8)

OR

(b) With a complete example, explain the design of Traffic Light Controller using Microcontroller and Microprocessor. (16)