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Question Paper Code : 21364

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fifth Semester

Electronics and Communication Engineering

EC 2304/EC 54 — MICROPROCESSORS AND MICROCONTROLLERS

(Regulation 2008)

(Common to PTEC 2304 – Microprocessors and Microcontrollers for B.E. (Part-Time) Fifth Semester Electronics and Communication Engineering – Regulation 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why is 8284 clock generator connected to the 8086 CLK pin?
2. When the 8086 processor is in minimum mode and maximum mode?
3. What are the 8086 instructions used for BCD arithmetic?
4. What are the contents of AL and CY after the execution of the following segment?

```
MOV BL, D5H
RCL BL, 3
MOV AL, BL
```

5. What is sample-and-hold circuit?
6. State 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. What do you mean by RTC?
10. State the importance of relays coils.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the different types of interrupts in 8086. (8)

(ii) Describe how memory is accessed in 8086 with suitable diagram. (8)

Or

(b) (i) Explain the internal architecture of 8086 microprocessor with neat diagram. (10)

(ii) Explain the 8086 basic bus cycle timing diagram. (6)

12. (a) (i) Explain the various assembler directives with suitable examples. (8)

(ii) Write an 8086 ALP to arrange the elements in an array of 10 elements in ascending order. (8)

Or

(b) (i) Discuss the data movement and program control instructions of 8086. (10)

(ii) Write an 8086 ALP to find the sum of numbers in the array of 10 elements. (6)

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) Draw the pin diagram of 8051 microcontroller and explain the functions of each pin. (10)

(ii) Discuss briefly the various registers in 8051 microcontroller. (6)

Or

(b) (i) Explain the interfacing of 4×4 matrix keyboard to the 8051 microcontroller with neat diagram. (10)

(ii) Write shortly on the various operating modes for serial port of 8051 microcontroller. (6)

15. (a) Draw and explain the 8086 based traffic light control system in detail.(16)

Or

(b) Draw the diagram to interface a stepper motor with a 8051 microcontroller and explain. Also write an 8051 ALP to run the stepper motor in both forward and reverse direction with a delay. (16)