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Question Paper Code : 51406

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

Fifth Semester

Electronics and Communication Engineering

EC 2304/EC 54 — MICROPROCESSORS AND MICROCONTROLLERS

(Regulation 2008)

(Common to PTEC 2304 — Microprocessors and Micro controllers 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. State the different data transfer schemes.

2. What are the advantages of memory-mapped I/O over I/O-mapped I/O?

3. List the flags in 8086 and state its functions.

4. Identify the addressing modes in the following instructions.
   AND AL, BL
   SUB AL, 24H
   MOV AL, (BP)
   MOV CX, 1245H.

5. What is key debouncing? What are the methods to detect the debouncing?

6. State the signals that govern the operation of the printer.

7. How does the processor 8051 knows whether on-chip ROM or external program memory is used?

8. What is the difference between AJMP and LJMP instruction?

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) The data transfer rate of I/O device 'A' is considerably less than that of the microprocessor. Draw a flowchart of data transfer operation to be used. (8)

(ii) Describe the functions of Execution Unit and Bus Interface Unit. (8)

Or

(b) Write notes on

(i) Maximum mode in 8086. (8)

(ii) Interrupt processing. (8)

12. (a) (i) Develop a program to transfer 10 bytes of data from memory location starting from 2000H. (8)

(ii) Describe program location control directives with suitable examples. (8)

Or

(b) (i) Develop a program to multiply two 16 bit numbers stored in P1 and P2. (8)

(ii) Explain rotate and shift instructions with suitable examples. (8)

13. (a) (i) Explain the function of Programmable Peripheral Interface — Intel 8255. (8)

(ii) Draw a block diagram to interface a Analog to Digital Converter (ADC) with a microprocessor and explain its working. (8)

Or

(b) (i) Draw a schematic to interface keyboard and display with 8085 using 8255 and explain. (8)

(ii) Write notes on Programmable Interval Timers 8253 and 8254. (8)

14. (a) (i) Enumerate about the ports available in 8051 microcontroller. (8)

(ii) Write an assembly language program for 8051 microcontroller to send 20 output pulses at P2.0. Vary the duration of pulse using NOP. (8)

Or

(b) (i) Describe the serial interface with 8051 microcontroller. (8)

(ii) Write an assembly language program for 8051 to find the largest of three numbers. (8)

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)
