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**Question Paper Code : 77121**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Fourth Semester

Computer Science and Engineering

EC 6504 — MICROPROCESSOR AND MICROCONTROLLER

(Common to Information Technology and Medical Electronics)

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the addressing modes of 8086. Give examples.
2. Write about the different types of interrupts supported in 8086.
3. Define bus. Why bus request and cycle stealing are required?
4. Draw the read cycle timing diagram for minimum mode.
5. Give the various modes and applications of 8254 timer?
6. Draw the block diagram of alarm controller with 8086 as processor.
7. Draw the diagram for Processor Status Word in 8051.
8. How do you select the register bank in 8051 microcontroller?
9. Differentiate between timers and counters. Draw the diagram of TCON in 8051.
10. Which register is used for serial programming in 8051? Illustrate it.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain briefly about the internal hardware architecture of 8086 microprocessor with a neat diagram. (10)  
(ii) Write a 8086 assembly language program to convert BCD data - Binary data. (6)

Or

- (b) (i) Explain about the Assume, EQU, DD assembler directives. (8)  
(ii) Explain briefly about Interrupt handling process in 8086. (8)
12. (a) Discuss the maximum mode configuration of 8086 by with a neat diagram. Mention the functions of the various signals. (16)

Or

- (b) (i) Compare closely coupled configuration with loosely coupled configuration. (8)  
(ii) Write a 8086 assembly language program to check whether the given string is palindrome or not. (8)
13. (a) (i) Explain how D/A and A/D interfacing done with 8086 with an application. (10)  
(ii) What is DMA? Explain the DMA based data transfer using DMA controller. (6)

Or

- (b) (i) Draw the block diagram of traffic light control system using 8086. (8)  
(ii) Write the algorithm and assembly language program for traffic light control system. (8)
14. (a) (i) Explain the architecture of 8051 microcontroller with neat diagram. (8)  
(ii) Explain the TMOD function register and its timer modes of operations. (8)

Or

- (b) (i) Explain about Arithmetic and control instruction set in 8051. (10)  
(ii) Write a program to bring in data in serial form and send it out in parallel form using 8051. (6)
15. (a) (i) Describe the different modes of operation of timers/counters in 8051 with its associated register. (10)  
(ii) How does one interface a  $16 \times 2$  LCD Display using 8051 Microcontroller? (6)

Or

- (b) Draw the diagram to interface a stepper motor with 8051 microcontroller and explain. Write a 8051 assembly language program to run the stepper motor in both forward and reverse direction with delay. (16)