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11/1/16 AN

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**Question Paper Code : 21455**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Fifth Semester

Electronics and Communication Engineering

EC 2304/EC 54 – MICROPROCESSORS AND MICROCONTROLLERS

(Regulations 2008)

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

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why is the 8086 memory divided into odd and even banks?
2. What do you mean by segment override prefix?
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 a sample and hold circuit?
6. What is key-debouncing?
7. How does the processor 8051 know whether on-chip ROM or external program memory is used?
8. What is the difference between AJMP and LJMP instruction?
9. Why are relays that use coils called electromagnetic relays?
10. What is PWM?

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) Explain the following :
- (i) Maximum mode in 8086 (8)
- (ii) Interrupt processing. (8)
12. (a) (i) What do you mean by assembler directives? Explain SEGMENT, TYPE, OFFSET with suitable examples. (8)
- (ii) Write an 8086 ALP to check whether the given string is palindrome or not. (8)
- Or
- (b) (i) Write an 8086 ALP to separate odd and even numbers in a given array. (6)
- (ii) Explain the data transfer group and logical group of 8086 instructions with necessary examples. (10)
13. (a) With neat block diagram, explain the 8255 programmable peripheral interface (PPI) and its operating modes. (16)
- Or
- (b) Draw and explain the block diagram of 8254 Programmable Interval Timer. Also (PIT) explain the various modes of operation. (16)
14. (a) (i) Draw the pin diagram of 8051 microcontroller and explain the functions of each pin. (10)
- (ii) Discuss in brief the various registers in 8051 microcontroller (6)
- Or
- (b) (i) Explain the interfacing of 4 × 4 matrix keyboard to the 8051 microcontroller with a neat diagram. (10)
- (ii) Discuss the various operating modes for serial port of 8051 microcontroller. (6)
15. (a) (i) With a neat diagram, explain washing machine control using microcontroller. (8)
- (ii) With a diagram, explain the DC motor control using 8051 microcontroller. (8)
- Or
- (b) (i) Explain stepper motor control using 8051 microcontroller. (8)
- (ii) With a neat diagram, explain the RTC interfacing using 12C standard. (8)