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**Question Paper Code : 51458**

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

**Fifth Semester**

**Electronics and Instrumentation Engineering**

**EC 2312/10133 EE 503/EE 2354/10133 EC 506/EE 64 – MICROPROCESSORS AND  
MICROCONTROLLERS**

**(Common to Instrumentation and Control Engineering)**

**(Regulations 2008/2010)**

**(Common to PTEE 2354/PTEC 2312/10133 EE 503 – Microprocessors and  
Microcontroller for B.E. (Part-Time) Fourth Semester – Electrical and Electronics  
Engineering – Regulations 2009/2010)**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**PART – A (10 × 2 = 20 Marks)**

1. Give the clock out frequency and state time, T of an 8085A operating at 6.25 MHz.
2. What is the use of ALE signal ?
3. Write the two instructions to initialize stack pointer at FFFFH.
4. What is a subroutine ?
5. What is 8259 ? What are its functions ?
6. What is handshake port ?
7. State any four differences between a microprocessor and microcontroller.

8. What is a Program status word ?
9. Determine the timer's clock frequency and its period for 8051 system with the crystal frequency of 12 MHz.
10. What is need and role of watch dog timer in Microcontroller ?

**PART – B (5 × 16 = 80 Marks)**

11. (a) (i) With functional block diagram explain the architecture of 8085. (10)
- (ii) Explain the necessity of having two status lines  $S_1$  and  $S_0$  in 8085. (6)

**OR**

- (b) (i) Explain the 8086 architecture. (8)
- (ii) Explain the addressing modes of 8086 with examples. (8)

12. (a) Explain the classification of the instruction set of 8085 microprocessor with suitable examples. (16)

**OR**

- (b) (i) Write a program to sort the given 10 numbers from memory location 2200H in the descending order. (6)
- (ii) What is a stack ? Explain the use of stack, and stack pointer and how they are affected by the instructions such as PUSH, POP, CALL and RET. (10)

13. (a) (i) Discuss the organization and architecture of 8255 programmable peripheral Interface with its functional block diagram. (10)
- (ii) Draw and explain the command and mode word formats of 8251A. (6)

**OR**

- (b) (i) Draw the functional pin diagram of 8279 and explain the function of different pins. (8)
- (ii) With block diagram, explain the functional block diagram of DAC0830. (8)

14. (a) With block diagram, explain the 8051 architecture. (16)

**OR**

(b) (i) Explain the various interrupts sources of 8051 and their enable registers. (10)

(ii) Explain the serial communication mode supported by 8051. (6)

15. (a) (i) Write a 8051 assembly language program to find the algebraic sum of elements in an array. The size of the array is n-bytes. ( $0 \leq n \leq 255$ ) (8)

(ii) Briefly explain the I/O instructions of 8051. (8)

**OR**

(b) Draw and explain the interfacing of seven segment display in multiplexed and non-multiplexed connection. (16)