Register Number: ……..

B.E., DEGREE EXAMINATIONS: MAY/JUNE 2013

Sixth Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

ECE116 : Microprocessors and Microcontrollers

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which interrupt has the highest priority?
   a) INTR b) TRAP
   c) RST6.5 d) RST 7.5
2. Identify the 16-bit register(s) in 8085 microprocessor?
   a) Stack pointer b) Program counter
   c) Accumulator d) a&b
3. In 8251, when TxRDY (Transmitter Ready) is high, it indicates
   a) Output register is empty b) Serial bits are transmitted
   c) USART has a character in buffer register d) Buffer register is empty
4. In 8259, in the operation command word 3 (OCW 3) ESMM = 0 and SMM = 1 indicates
   a) Set special mask b) Reset special mask
   c) No action d) Enable interrupt
5. 8088 microprocessor differs with 8086 microprocessor in
   a) Data width on the output b) Address capability
   c) Support of coprocessor d) Support of MAX / MIN mode
6. Fetching next instruction while the current instruction is executing is called
   a) Single stepping b) pipelining
   c) linear addressing d) segment addressing
7. Data pointer is a ---------- bit register
   a) 8 b) 16
   c) 24 d) 32
8. The _____ register contains the 16-bit offset for the CODE segment.
   a) Stack Pointer b) Instruction pointer
   c) Source Index Register d) Destination Index Register

9. The PUSH instruction decrement stack pointer by_____ and copies a word from source location to location in the stack.

a) One b) Two

c) Three d) Four

10. The REP instruction prefix is used to repeat the operation till ___ counter becomes zero

a) AX b) BX

c) CX d) DX

PART B (10 x 2 = 20 Marks)

11. What is the function of ALE signal in 8085 microprocessor?
12. Write the description of XCHG instruction.
13. What is 8259? What are its functions?
14. Sketch a simple block diagram to interface ADC with microprocessor.
15. List out the segments registers available in 8086 processor.
16. What operation is carried out when 8086 executes the instruction MOVSB?
17. Distinguish between Microcontroller and Microprocessor.
18. List any four features of a microcontroller.
19. Name any two bit manipulation instructions in 8051 microcontroller.
20. Mention the different addressing modes of 8051 Microcontroller.

PART C (5 x 14 = 70 Marks)

21. a) (i) Explain the I/O read and write operation of 8085 processor with timing diagram. (8)

(ii) Explain the pin definition of 8085. (6)

(OR)

b) (i) Write an assembly language program to multiply two 8 bit numbers. (4)

(ii) Write a program to count from 0 to 20H with a delay of 100ms between each count. After the count 20H the counter should reset itself. And repeat the sequence. Use register pair DE as delay register. Write the program and show the calculations to set up a delay of 100ms. (10)

22. a) Draw and explain the internal architecture of 8086 microprocessor.

(OR)

b) Explain the minimum mode and maximum mode of operation of 8086 microprocessor.

23. a) With a neat sketch explain the function of 8279 keyboard display controller.

(OR)

b) With a neat functional block diagram explain the features of 8255 programmable peripheral interface and its programming modes.

24. a) With a neat block diagram explain the 8051 Microcontroller architecture.

(OR)

b) (i) Explain timer modes of 8051 Microcontroller. (8)

(ii) Explain serial communication in 8051. (6)

25. a) (i) Write a program using 8051 assembly language to sort the given 10 numbers in ascending order. (7)

99, 82,34,16,21,58,73,09,44

(ii) Explain with examples 8051 arithmetic instructions. (7)

(OR)

b) Write a program that continuously gets 8 bit data from P0 and sends it to P1 while simultaneously creating a square wave of 200µs period on pin P2. Use timer 0 to create a square wave. Assume XTAL frequency=11.0592MHz.

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