

B.E. DEGREE EXAMINATIONS: NOVEMBER 2009

Fifth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U07EE504 Microprocessor and Microcontroller

Time: Three hours

Maximum Marks: 100

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. ALE Signal of the microcontroller 8051 activated in machine cycle _____
 a) Twice b) Thrice c) once d) randomly
2. MC 8051 has four register banks with each bank having _____ registers
 a) 8 b) 7 c) 5 d) 3
3. A Stepper motor with a step angle 5 degrees has _____ steps per revelation
 a) 72 b) 80 c) 73 d) 69
4. Which port 8051 provides A8-A15
 a) P₀ b) P₁ c) P₂ d) P₃
5. 8086 is _____ bit microprocessor
 a) 4 bit b) 8 bit c) 16 bit d) 12 bit
6. 8086 has _____ bit flag register.
 a) 16 bit b) 32 bit c) 8 bit d) 64 bit
7. The 8253 programmable interval timer has _____ counters
 a) 3 b) 5 c) 8 d) 6
8. The 8255 PPI has _____ I/o ports
 a) 3,8 bit b) 2,16 bit c) 18, 216 bit d) 3,16 bit
9. Pentium Processors has _____ bit data bus
 a) 16 bit b) 32 bit c) 64 bit d) 128 bit
10. The mnemonic DJNZ stands for _____
 a) Decrement & jump if equal to zero
 b) Decrement & jump if not equal to zero
 c) Jump when not zero
 d) Decrement and jump if equal to one

PART B (10 x 2 = 20 Marks)

11. What is the difference between microprocessor and micro-controller?
12. Can the 8086 microprocessor operate on more than one instruction at a time? If so explain how it is done.
13. Draw the status register format of 8255 PPI.
14. Name the six modes of operations of an 8253 programmable interval timer.
15. What is the operation of PSEN signal in 8051 MC?
16. Give the PSW setting for making register bank 2 as default register bank in 8051 microcontroller.
17. What do you mean by inquire cycle in Pentium microprocessor? Explain its need.
18. Why do Pentium processors called as super – scalar processors?
19. Give the application of Do – D4 pins used in LCD
20. How do we change DC motors rotation direction?

PART C (5 x 14 = 70 Marks)

- 21 a) i) Describe with a block diagram the internal architecture and working of all in units of a 8086 microprocessor
- ii) How many times does the NOP instruction execute in the following sequen 8086 code? Also explain the working of this code

XYZ: MOV CX, 20h

Push CX

MOV CX 09 h

ABC: NOP

Loop ABC

Pop CX

Loop Xyz

(OR)

- b) i) With examples explain the different addressing modes supported in 8086.
- ii) Explain the operations of the following instructions
 1. Loop
 2. JcXZ
 3. Mul cx

i) What are the registers available in 8257 DMAC? What are their functions? (8)

ii) Explain in detail different modes of operation of 8255. (6)

(OR)

b) i) With a neat sketch and explain the operation of an interrupt controller (8259) (8)

ii) Discuss the various operating modes of 8253 timer with necessary control words (6)

23. a) i) Explain the interrupt structure of 8051 microcontroller and how the interrupts are prioritized? (8)

ii) Explain the different serial communication modes in 8051 (6)

(OR)

b) i) Write 8051 ALP to transmit "Hello World" to PC at 9600 baud rate for external clock frequency of 11.0592 MHz. (10)

ii) List the widely used directives of 8051 microcontroller (4)

24. a) i) With a block diagram explain the functional units of Pentium processor? (10)

ii) Explain why the address bus of Pentium is bidirectional. (4)

(OR)

b) i) Explain the following Pentium instructions:-

CPUID (2)

RSM (2)

RDMSR (2)

WRMSR (2)

RDTSC (2)

ii) What is meant by multitasking? Explain the same. (4)

25. a) i) Explain the operation of A / D converter in PIC (10)

ii) With a neat block diagram, explain any one application of industrial process control system in detail. (4)

(OR)

b) With a neat circuit diagram explain how a 4x4 keypad is interfaced with 8051 MC and write 8051 ALP for keypad scanning.
