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CS-64

BACHELOR IN COMPUTER APPLICATIONS

Term-End Examination

December, 2010

02087

CS-64 : INTRODUCTION TO COMPUTER ORGANISATION

Time : 3 hours *Maximum Marks : 75*

*Note : Question Number **1** is **compulsory**. Attempt any three questions from the rest.*

1. (a) Simplify the following Boolean function using SOP form using K - Map. 6

$f(A, B, C, D) = \Sigma(1, 4, 5, 10, 12, 14)$

(b) What are decoders ? Depict the logic diagram and truth table of a 3×8 decoder. 5

(c) What are Micro Operations ? Explain the four types of micro operations in digital computers. 5

(d) Explain the process of machine start up using a suitable diagram. 4

(e) Write a program in 8086 assembly language to copy five elements byte array to another location in the data segment. Make suitable assumptions, if any. 5

(f) Define the following terms : 5

(i) Linker

(ii) COM programs

(iii) Interleaved memory system

(iv) Clock cycle

(v) Flag register

2. (a) Write a program in assembly language to convert an ASCII number to its hexadecimal equivalent. 5

(b) What is Master-Slave flip flop ? Discuss its working and show how the race around condition is eliminated in this flip flop. 6

(c) Perform the following binary arithmetic operations using 2's complement notation. 4

(i) $(64)_{10} + (95)_{10}$

(ii) $(95)_{10} - (64)_{10}$

(iii) $(-14)_{10} \times (-2)_{10}$

3. Differentiate between the following : 15

(a) Ripple and Ring counter

(b) Programming and Microprogramming

(c) JK flip flop and S-R flip-flop

(d) RAM and ROM

(e) Full Adder and Half Adder

4. (a) What will be the result of execution of the following 8086 assembly language instructions 6

AL = 01010101

BL = 10101010

(i) CMP AL, BL

(ii) ADD AL, BL AAA

(iii) ROR BL, 04

(b) What are Interrupts and why are they important ? Explain the different types of interrupts. Write the steps of an Interrupt Service Routine. 5

(c) What are Optical Memories ? Explain their layout and block format. 4

5. (a) Explain the Bus Interconnection structure. Explain the following terms w.r.t. the bus. 6

(i) Dedicated or Multiplexed Buses

(ii) Daisy chaining

(iii) Polling

(b) What is Cache Memory ? Explain its organisation and utility. Explain the set associative mapping scheme of cache with the help of a suitable diagram. 7

(c) The various registers for 8086 microprocessor have values as 2

$SP=0011_h$

$SS=1000_h$

Find the physical address of the top of the stack.