

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Pre-Revised)**

Term-End Examination

01491 June, 2017

**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 expression using K-map :

$$F(x, y, z, w) = xyzw + \bar{x}y\bar{z}w + x\bar{y}z + x\bar{w}$$

Also draw the logical circuit for the simplified Boolean expression. 7

- (b) What is a half adder ? Write the truth table for a half adder and draw its logic diagram. 4

- (c) Explain the following addressing schemes giving one example for each : 8

- (i) Immediate addressing
- (ii) Base addressing
- (iii) Register indirect addressing
- (iv) Stack addressing

- (d) Write a program using 8086 assembly language that clears the upper four bits of a byte data stored in memory. Store the result in the same memory location. 5
- (e) How is Extra Segment (ES) different from Data Segment (DS) ? 2
- (f) Given the following data values for 8086 registers (All values are in hexadecimal notation) :
- CS = 00FFh
- SS = 0123h
- IP = 0011h
- SP = 0020h
- (i) Calculate the physical address of the current instruction being executed.
- (ii) Calculate the physical address of the top of the stack. 4
2. (a) Discuss the Direct Memory Access (DMA) using a suitable diagram. Explain the use of Data Register and Address Register in DMA. 7
- (b) What are Flip-flops ? Describe the J-K flip-flop with the help of a logic diagram. 6
- (c) What is a Microinstruction ? 2

3. Explain the following : 15
- (a) CCDs
 - (b) Magnetic Bubble Memories
 - (c) Status and Control Registers
 - (d) BIU in 8086 microprocessor
 - (e) Flags in 8086 microprocessor
4. (a) What is an Interrupt ? Explain the step-by-step procedure to process an interrupt. 7
- (b) Draw the block diagram and explain the functioning of the Wilkes Control Unit. 8
5. (a) Explain the need of error detection and correction. What is a parity bit ? How can a parity bit be used for the purpose of error detection ? 6
- (b) Differentiate between the following : 5
- (i) SRAM and DRAM
 - (ii) Magnetic tape and Magnetic disk
- (c) What are the four general purpose registers in 8086 ? Explain the uses of each one of them. 4
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