



SP-9415

Seat No. _____

B. C. A. (Sem. II) Examination
April / May – 2006
Computer Organization & Arch.
(New Course)

Time : 3 Hours]

[Total Marks : 100

- 1** Attempt any **four** : **20**
- (i) Explain following logic gates with truth table :
 - (a) AND
 - (b) OR
 - (c) NAND
 - (d) NOR
 - (e) XOR
 - (ii) What is Boolean Algebra? Using truth table prove that $(A+b)' = A'.B'$
 - (iii) Simplify the following expressions and draw the circuit diagram of simplified expression.
 - (a) $AB + A(CD + CD')$
 - (b) $(BC' + A'D)(AB' + CD')$
 - (iv) Explain full adder
 - (v) Discuss NAND gate as an universal gate.
- 2** Explain any **four** components : **20**
- (a) 3 to 8 line decoder
 - (b) 4 to 1 line multiplexer
 - (c) Octal to Binary Encoder
 - (d) Unidirectional Shift register
 - (e) Asynchronous 4-bit Binary Counter.
- 3** Attempt any **four** : **20**
- (a) Explain floating point representation of a number.
 - (b) What do you mean by parity bit? Describe how data is transferred using parity bit.
 - (c) Explain SR-flip flop and D-flip-flop
 - (d) Describe general stack organization of CPU.
 - (e) Explain register stack.

- 4 Attempt any **two** : **20**
- (a) What is Reserve Polish Notation (RPN) ? Explain the use of RPN to evaluate arithmetic expressions using suitable example.
 - (b) What do you mean by interrupt? Describe different types of interrupt.
 - (c) Draw the block diagram of ALU. explain how it works.
- 5 Attempt any **two** : **20**
- (a) Explain memory bus and I/O bus in detail.
 - (b) What is an IOP? Draw the block diagram of computer with IOP. Explain how IOP is useful.
 - (c) What is DMA? Explain DMA controller.
-