



SN - 400

V Semester B.C.A. Degree Examination, Nov./Dec. 2010  
(Y2K8 Scheme)

COMPUTER SCIENCE  
BCA 502 : Computer Architecture

Time : 3 Hours

Max. Marks : 90

SECTION - A

I. Answer **any ten** questions. **Each** carries **two** marks.

(10×2=20)

- 1) Write the boolean expressions and truth tables of AND gate and OR gate.
- 2) Explain Half-Adder.
- 3) Explain ROM.
- 4) Define g's complement with example.
- 5) Convert binary number 111001 to octal and Decimal number.
- 6) What is Indirect Addressing mode ? Give example.
- 7) What is memory reference instruction ? Give example.
- 8) Discuss CIL instruction.
- 9) What is state table ?
- 10) What are the types of interrupts ?
- 11) Convert  $(38)_{10}$  into 2421 and Excess - 3 gray code.
- 12) Discuss auxiliary memory.



## SECTION - B

II. Answer **any five** questions. **Each** carries **five** marks.

(5×5=25)

- 13) Discuss about SR Flip-Flop.
- 14) What is a Multiplexer? Give diagram for a 4-to-1-line multiplexer.
- 15) Explain the procedure for subtraction of unsigned numbers using 2's complement.
- 16) Explain instruction cycle.
- 17) Explain the 'Two-Address instructions'.
- 18) What is the instruction set of RISC?
- 19) Differentiate between Isolated I/O and memory mapped I/O.
- 20) Explain virtual memory.

## SECTION - C

III. Answer **any three** questions. **Each** carries **fifteen** marks.

(3×15=45)

- 21) a) Write the truth table and logic diagram using NAND gates for the boolean function  $F = xy'z + x'y'z + x'yz'$ . (7+8)  
b) Explain the 3 to 8 line Decoder.
  - 22) a) Explain parity generator and parity checker. (8+7)  
b) Explain floating point representation.
  - 23) Explain the design of Basic computer with flowchart.
  - 24) Design a clocked sequential circuit that goes through a sequence of binary states 00, 01, 10 and 11 when an external input  $x = 1$ . The state of the circuit remains unchanged when  $x = 0$ .
  - 25) a) Explain the input-output Interface.  
b) Explain DMA.
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