



SN – 674

V Semester B.C.A. Degree Examination, November/December 2017  
(Y2K8 Scheme) (Repeaters)  
BCA 502 : COMPUTER ARCHITECTURE

Time : 3 Hours

Max. Marks : 100

- Instructions:** 1) 100 marks for students of 2011 – 12 onwards (includes Section – D).  
2) 90 marks for students prior to 2011 – 12 (excludes Section – D).

SECTION – A

- I. Answer any ten questions. Each carries two marks. (10×2=20)
- 1) What are Universal Gates ?
  - 2) Define SOP and POS.
  - 3) Define RAM. Name the various types of RAM.
  - 4) Convert Hexadecimal code  $(BCA)_{16}$  to Binary and Octal number.
  - 5) What is FAN IN and FAN OUT ?
  - 6) What is memory reference instruction ?
  - 7) What is UART ?
  - 8) What is Virtual memory ?
  - 9) Explain BUN instruction.
  - 10) Define micro operation. Give example.
  - 11) What is state table ?
  - 12) What is PSW ?

SECTION – B

- II. Answer any five questions. Each carries five marks. (5×5=25)
- 13) Explain the working of J-K flip-flop with a logic diagram.
  - 14) What is a multiplexer ? Explain 4-to-1 line MUX.
  - 15) Explain instruction cycle with flow chart.

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- 16) Explain various Input-output instructions.
- 17) What are the various characteristics of memory devices ?
- 18) What is interrupt ? Explain the various types of interrupts.
- 19) Explain mapping process in segmented page memory management unit.
- 20) What is polling ? Explain.

## SECTION – C

- III. Answer **any three** questions. **Each** carries **fifteen** marks. (3×15=45)
- 21) a) What is meant by flip-flop ? Explain its type with example.  
b) Explain implementation of full adder using two half adder. (8+7)
  - 22) a) Explain 2's complement subtraction method with example.  
b) Explain with a neat diagram 4-bit synchronous binary counter. (7+8)
  - 23) a) Explain different types of instruction formats with example for each.  
b) Explain DMA controller with a block diagram. (8+7)
  - 24) a) Explain the common bus system with a neat diagram.  
b) Distinguish between hardwired control and microprogrammed control. (10+5)
  - 25) a) Explain associative memory with a neat block diagram.  
b) Compare RISC and CISC computer organisation. (7+8)

## SECTION – D

- IV. Answer **any one** question. **Each** carries **ten** marks. (10×1=10)
- 26) What is shift register ? Explain various types of shift registers.
  - 27) Explain the various addressing mode.
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