



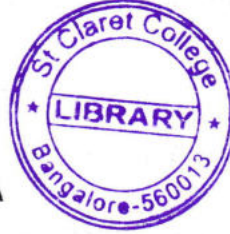
CS – 498

37
V Semester B.C.A. Degree Examination, March 2023
(CBCS) (F+R) (Y2K14)
COMPUTER SCIENCE
BCA 503 : Computer Architecture

Time : 3 Hours

Max. Marks : 100

Instruction : Answer *all* Sections.



SECTION – A

- I. Answer **any ten** questions. **Each** carries **two** marks. (10×2=20)
- 1) Write the logic symbol, expression and truth table of EX-OR gate.
 - 2) List the various types of TTL family.
 - 3) What is a minterm ? Give example.
 - 4) Define Multiplexer and Demultiplexer.
 - 5) Convert $FACE_{(16)}$ to decimal.
 - 6) List out the types of shift registers.
 - 7) What is a BSA instruction ?
 - 8) Mention two applications of register transfer language.
 - 9) What is PSW ?
 - 10) Name the two types of computer architecture based on registers.
 - 11) What is Handshaking ?
 - 12) What is virtual memory ?

SECTION – B

- II. Answer **any five** questions. **Each** question carries **five** marks. (5×5=25)
- 13) Explain Von Neumann architecture with a neat diagram.
 - 14) State and prove De Morgan's theorems.
 - 15) Prove that unweighted excess 3 code is a self complementing code.
 - 16) Explain various input output instructions.

P.T.O.



- 17) Explain the design of accumulator logic with a neat diagram.
- 18) Write a note on addressing modes.
- 19) Explain DMA controller with a block diagram.
- 20) Write a note on cache memory.

SECTION – C

III. Answer **any three** questions. **Each** question carries **fifteen** marks. **(3×15=45)**

- 21) a) Simplify $F(A, B, C, D) = \sum m (1, 3, 7, 11, 15) + \sum d (0, 2, 5)$ using K-map. 8
- b) Explain full adder with a neat logic diagram. 7
- 22) a) Design a octal to binary encoder. 8
- b) Explain the steps involved in the design of the sequential circuits. 7
- 23) Explain the design of basic computer with flow chart. 15
- 24) a) Explain data transfer instructions. 8
- b) Differentiate between CISC and RISC. 7
- 25) a) Explain memory hierarchy. 8
- b) Explain the working of associative memory. 7

SECTION – D

IV. Answer **any one** question. **Each** question carries **ten** marks. **(1×10=10)**

- 26) a) Explain LDA and STA instructions. 5
 - b) Explain the working of JK flip-flop. 5
 - 27) a) Explain common bus system. 5
 - b) List the applications of EEPROM. 5
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