



QP – 420

37

V Semester B.C.A. Degree Examination, March/April 2022
(CBCS) (F+R) (Y2K14 Scheme)
COMPUTER SCIENCE
BCA 503 : Computer Architecture

Time : 3 Hours

Max. Marks : 100

Instruction : Answer *all* Sections.

SECTION – A



I. Answer **any ten** questions :

(10×2=20)

- 1) Define Universal gate with Logic circuit.
- 2) Define combinational and sequential circuits.
- 3) What is CMOS and ECL ?
- 4) Define state table and state diagram.
- 5) Find 1's complement of $(456)_{10}$.
- 6) Define Flip Flop.
- 7) What is the format of any instruction ?
- 8) What is PSW ?
- 9) What is normalization ?
- 10) Define virtual memory.
- 11) What is Polling ?
- 12) What is Memory Management System ?

SECTION – B

II. Answer **any five** questions :

(5×5=25)

- 13) Design Half adder and Full adder circuits with logical gates.
- 14) Explain PIPO shift Register.

P.T.O.



- 15) Discuss Error Detection and Correction Codes.
- 16) Explain any five memory reference instructions.
- 17) Explain I/O commands.
- 18) Explain types of CPU organization.
- 19) Write a note on memory mapping.
- 20) Write and explain Associative Memory.

SECTION – C

III. Answer **any three** question : (3×15=45)

- 21) a) Derive a 3 bit parity generator using odd parity system. 8
b) Simplify $F(A, B, C, D) = \sum m(1, 5, 6, 12, 13, 15) + \sum d(2, 4)$ using K-map. 7
- 22) a) Explain different weighted codes. 8
b) Explain classification of IC families. 7
- 23) Explain with neat flowchart the computer operation and design. 15
- 24) Explain different types of addressing modes with examples. 15
- 25) a) Explain working of DMA controller with block diagram. 8
b) Explain I/O interface unit. 7

SECTION – D

IV. Answer **any one** question : (1×10=10)

- 26) a) Discuss priority encoder in detail. 6
b) Distinguish between FGI and FGO. 4
 - 27) a) What are the characteristics of RISC and CISC architecture ? 5
b) What is a binary counter ? Explain 4 bit counter. 5
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