



GN-452

101435

V Semester B.C.A. Examination, December - 2019
(CBCS) (F+R) (Y2K14)

COMPUTER SCIENCE
BCA503T : Computer Architecture

Time : 3 Hours

Max. Marks : 100

Instruction : Answer **all** the Sections.

SECTION - A

10x2=20

I. Answer **any ten** questions.

1. State any two basic rules of Boolean Algebra.
2. What is a Combinational Circuit ?
3. What is a bidirectional register ?
4. Add $-15_{(10)}$ and $-35_{(10)}$ using 2^s complement method.
5. Convert $10101_{(2)}$ to Gray code.
6. What are the three control input for registers ?
7. What is the function of INPR ?
8. Explain LHLD Operation.
9. What is a recursive subroutine ?
10. Mention the types of CPU Organization.
11. What is an Interrupt Vector ?
12. Define Hit ratio.

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SECTION - B

II. Answer **any five** questions.

5x5=25

13. Explain NAND and NOR gate with logic symbol and truth table.
14. Explain 8x3 Priority Encoder.
15. Explain SISO shift register.
16. Write a note on hamming code.
17. Discuss error detection and error correction codes briefly.
18. Explain DMA controller with a block diagram.
19. Explain the levels of cache memory.
20. Write a note on RAM.

SECTION - C

III. Answer **any three** questions.

3x15=45

21. (a) Simplify the following Boolean function using k-Map. 7

$$F(A, B, C, D) = \sum (0, 2, 4, 8, 9, 10, 11, 12, 13)$$
 (b) Explain the full adder circuit with truth table. 8
22. (a) Explain the basic computer registers. 6
 (b) Write a note on : (i) BUN (ii) BSA (iii) ISZ 9
23. Explain the different types of Data Manipulation Instructions. 15
24. (a) Explain the timing and control unit with a neat diagram. 8
 (b) Compare the RISC and CISC architectures. 7
25. (a) Explain Magnetic tape storage. 7
 (b) Explain the associative memory with a neat block diagram. 8

SECTION - D

IV. Answer **any one** question.

1x10=10

26. (a) Explain the working of T and D flipflop. 5
 (b) Write a note on the different modes of data transfer. 5
27. (a) Explain interrupt cycle with a neat diagram. 5
 (b) Explain various Input output instructions. 5