



GN-452

100439

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

I. Answer **any ten** questions.

10x2=20

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.

P.T.O.



SECTION - B

- II.** Answer **any five** questions. **5x5=25**
13. Explain NAND and NOR gate with logic symbol and truth table.
 14. Explain 8×3 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**