GN-452

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.

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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 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

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