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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**

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