D5BCS2001

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2022
(Regular/Improvement/Supplementary)
COMPUTER SCIENCE
GBCS5B07T: COMPUTER ORGANIZATION AND ARCHITECTURE

Time: 2 Hours   Maximum Marks: 60

SECTION A: Answer the following questions. Each carries 2 marks.
(Ceiling 20 Marks)

1. Draw the Logic diagram and truth table of AND gate.

2. Define Negative logic representation.

3. Construct SR Latch using NAND gate, Give its truth table.

4. What is the purpose of a Left Shift Register (LSR)?

5. What will be the values for Mod (M) in Counters during Up and Down counting?

6. What are Memory Reference Instructions?

7. Define Control Signals and Control Variables.

8. What is a Microprogram?

9. What is the significance of Control Data Register (CDR)?

10. What do you mean by Auxiliary Memory?

11. Define Asynchronous and synchronous data transfer.

12. What is Priority Interrupt?

SECTION B: Answer the following questions. Each carries 5 marks.
(Ceiling 30 Marks)

13. What do you mean by Race Around Condition in JK Flip Flop?

14. Explain the working of a 3bit Binary Up/Down Ripple Counter.

15. Explain the data transfer occurring through the 16-bit Common Bus for the execution of the micro operations DR $\leftarrow$ AC and AC $\leftarrow$ DR.

16. Explain with an example how Stack is used for the evaluation of Arithmetic Expression.

17. Write a note on Relative Addressing mode and Indexed Addressing mode.

18. Explain Write- through and Write- back methods in Cache memory

19. Explain about Serial communication in I/O.

SECTION C: Answer any 1 question. Each carries 10 marks.

20. Draw and Explain BCD to 7 segment Decoder circuit.

21. Discuss about the Design of Accumulator Logic.

(1 x 10 = 10 Marks)