Hall Ticket No | | | | | | | | | | | Question Paper Code: ACSB07

INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)

B.Tech IV Semester End Examinations (Regular), November – 2020

Regulation: IARE–R18

COMPUTER ORGANIZATION AND ARCHITECTURE

Time: 2 Hours **(CSE | IT)** **Max Marks: 70**

Answer any Four Questions from Part A
Answer any Five Questions from Part B

PART – A

1. How does instruction set architecture work? **[5M]**
2. Brief about the register transfer language. **[5M]**
3. What are data transfer instructions give an example? **[5M]**
4. With a neat diagram, describe auxiliary memory. **[5M]**
5. What is pipelining? Name the two pipeline organizations. **[5M]**
6. Explain about the CPU organization. **[5M]**
7. Mention the types of shifts micro-operations. Explain **[5M]**
8. Elaborate the synchronization concept used in inter processor communication. **[5M]**

PART – B

9. List and explain the functional units of a computer with a neat diagram. **[10M]**
10. Discuss about the computer levels of programming languages. **[10M]**
11. Write in detail the different addressing modes in computer architecture with suitable examples. **[10M]**
12. Discuss the principle operation of micro programmed control unit. **[10M]**
13. Draw the flowchart for Booth's algorithm for multiplication of signed 2's complement numbers and explain with an example. **[10M]**
14. Discuss in detail about the memory reference instructions of a basic computer. **[10M]**
15. What do you mean by virtual memory? Discuss how paging helps in implementing virtual memory. **[10M]**
16. Discuss the different mapping techniques used in cache memories and their relative merits and demerits. **[10M]**
17. A nonpipeline system takes 50 ns to process a task. The same task can be processed in a 6 segment pipeline with a clock cycle of 10 ns. Determine the speed up ratio of the pipeline for 100 tasks. What is the maximum speed up that can be achieved **[10M]**
18. What are the various physical forms available for establishing an interconnection network? Explain. **[10M]**