

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - III CS&BS : WINTER : 2023
SUBJECT : COMPUTER ORGANIZATION & ARCHITECTURE

Day : Tuesday

Time : 10:00 AM-01:00 PM

Date : 5/12/2023

W-24143-2023

Max. Marks : 60

N.B :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable **CALCULATOR** is allowed.
- 4) Draw neat and labeled diagram **WHEREVER** necessary.
- 5) Assume suitable data if necessary.

- Q.1 Draw and explain Bus Interface Unit and Execution Unit of 8086. [10]
OR
- Q.1 What is RTL? Explain with suitable examples. [10]
- Q.2 Describe IEEE 754 standards for floating point numbers. Represent $(-127.1075)_{10}$ in single and double precision format. [10]
OR
- Q.2 Draw flowchart for Restoring division algorithm. Perform following division using Restoring division algorithm. [10]
Dividend = 17 and Divisor = 03.
- Q.3 Draw and explain Single bus organization of a CPU and write control sequence for $ADD(R_1), R_2$. [10]
OR
- Q.3 Compare the following: [10]
i) Hardwired control unit and Microprogrammed control unit.
ii) Horizontal and Vertical Microinstructions.
- Q.4 What is Cache memory? Describe Set Associative mapped cache. [10]
OR
- Q.4 Explain Memory hierarchy and classify different types of semiconductor memories. [10]
- Q.5 Draw and explain different types of I/O channels with suitable examples. [10]
OR
- Q.5 List and explain features and signals of USB bus. [10]
- Q.6 What is Cache coherency? Explain MESI protocol. [10]
OR
- Q.6 List and explain different data hazards in instruction pipeline. [10]

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