

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)
B.Tech.Sem - VI COMPUTER :SUMMER- 2022
SUBJECT : COMPUTER ORGANIZATION & ARCHITECTURE

Day : Tuesday
Date : 21-06-2022

S-13660-2022

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.:

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

- Q.1** a) What is instruction pipeline? (05)
b) What are the general roles performed by processor registers. (05)

OR

- Q.1** a) Explain superscalar processors. (05)
b) What categories of data are commonly supported by user visible registers? (05)

- Q.2** a) Represent following number in single precision format. (05)
i) $(275.14)_{10}$
b) Explain 2's complement number representation also state reason why it is preferred over 1's complement and sign magnetite representation. (05)

OR

- Q.2** Draw and explain restoring division algorithm. Solve following example using restoring division algorithm. (10)
i) $(7/3)$

- Q.3** a) Explain the micro-operations within the fetch cycle. (05)
b) What is the difference between horizontal and vertical micro-instructions? (05)

OR

- Q.3** Draw and explain the single bus organization of CPU and write the control sequence for ADD R3, R4. (10)

- Q.4** a) Discuss the programmed I/O. (05)
b) Enlist the functions of standard bus. (05)

OR

- Q.4** a) When a DMA module takes control of a bus and while it retains control of bus, what does processor do? (05)
b) State the difference between programmed I/O and interrupt driven I/O. (05)

- Q.5** a) Define the term track, cylinder and sector. (05)
b) What is parity bit? (05)

OR

- Q.5** a) Explain in short the key characteristics of computer memory system. (05)
b) Write short note on hard disk drives. (05)

- Q.6** a) Explain the concept of virtual processors. (05)
b) Enlist the advantages of multi-core system over single core system. (05)

OR

- Q.6** a) Discuss the problems of bus contention. (05)
b) What is the difference between loosely coupled and tightly coupled configuration. (05)

* * * * *