

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2021-COURSE)
B. Tech. Sem - I Electrical & Computer Engineering : WINTER-2022
SUBJECT : COMPUTER ARCHITECTURE & DATA STRUCTURE WITH C

Day : Wednesday

Time : 10:00 AM-01:00 PM

Date : 18-01-2023

W-25147-2022

Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labelled diagrams **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

Q.1 Explain in detail the MIPS architecture. Also discuss elements like Register File, memory, MIPS instructions. (10)

OR

Q. 1 a) Explain in detail MIPS addressing. (05)
b) Explain the following: (05)

- i) Instruction representation
- ii) Logical operation

Q.2 Explain pipelining in MIPS implementation. Explain the concept using MIPS instructions. (10)

OR

Q.2 Explain instruction pipelining in detail. Comment on following points with regard to Instruction pipelining: (10)

- i) Speed up ratio
- ii) Frequency
- iii) Throughput
- iv) Pipelining efficiency

Q.3 a) Draw and explain vector architecture in computer organization. (05)
b) Explain in detail Cache memory organization. (05)

OR

Q.3 Explain in detail Flynn's classification. (10)

Q.4 a) What is Array in C? Write its syntax. Also discuss type of Arrays. (05)
b) Explain string in C, comment on string Arrays. (05)

OR

Q.4 a) Discuss concept of time sharing with regard to computer processing. (05)
b) What is structure in C program? Explain with suitable example. (05)

Q.5 a) How pointer variables are declared for structure give suitable example. (05)
b) Explain concept of self-referential structure. (05)

OR

Q.5 a) Explain concept of passing structure to a function with appropriate example. (05)
b) What is pre-processor objectives in C? (05)

Q. 6 a) Write short note on graph and its representation. Also discuss graph transversals. (05)

b) Discuss in detail Union. (05)

OR

Q. 6 Discuss in detail Linear and Non-Linear data structure. (10)