

POKHARA ENGINEERING COLLEGE

Internal Assessment Examination

Level: Bachelor Semester – Spring Year :2024
Programme: Computer Full Marks: 100
Course: Computer Architecture(New) Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Discuss the term Computer Architecture. Explain different addressing modes with appropriate figures and example of each. 2+6
b) Define RTL. Explain different microoperations used in computers. 2+5
2. a) Define register. Explain about the register organization in detail. 2+6
b) Explain in brief about different microinstructions used in different sub cycles. 7
3. a) Perform -13×-15 using Booth's algorithm. 7
b) Explain and design a 4-bit ALU. 8
4. a) Compare and Contrast between Hardwired and Microprogrammed Control Unit. 7
b) Explain the different sequencing techniques in Microprogrammed Control Unit. 8
5. a) Why is Cache Memory called influential memory? Explain how Set Associative Mapping overcomes the drawbacks of Associative and Direct Mapping. 2+6
b) Define DMA? Explain how DMA overcomes the limitations of Interrupt Driven I/O and Programmed Driven I/O. 1+6
6. a) A non-pipeline system takes 100 ns to process a task. The same task can be processed in a six-segment pipeline with time delay of each segment in the pipeline is as follows; 20 ns, 25 ns, 30 ns. Determine the speed of ratio of pipeline for 100 tasks. 7
b) Define multiprocessing. Classify and explain computers in accordance to Flynn's classification. 2+6

7. Write short notes on any two:

- a) RISC vs CISC
- b) VHDL
- c) Floating Point Representation

2×5

Good Luck