POKHARA UNIVERSITY

Level: Bachelor | Semester:Spring | Year : 2024
Programme: BE | 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) What do you mean by addressing modes? Explain different addressing modes with suitable examples and diagrams. 7
   b) Evaluate X = (M*N) + (P*Q) using three, two, one and zero address instructions. 8

OR

Differentiate between computer architecture and computer organization. Briefly explain the future trends in computer.

2. a) Write the structure of VHDL programming and write code for full adder using component. 8
   b) Registers in CPU perform two major roles. What are the various register involved to fulfill the roles? 7
3. a) Define control memory. Explain the working of microprogrammed control unit. Differentiate between Horizontal and Vertical microprogrammed control unit. 8

OR

Why microinstruction sequencing is important? Explain variable address field sequencing techniques with necessary block diagram.

   b) Perform unsigned binary multiplication of 17*4 using Booth's algorithm. 7
4. a) What are the pipelining hazards? How can they be removed? 8
   b) What is mapping in memory? What are the various mapping techniques? Explain in detail. 7
5. a) Briefly explain the various memory storage devices of memory organization. 8
   b) DMA overcomes the drawback of programmed I/O and interrupt driven I/O. How can you clarify the statement? 7
6. a) How can you achieve Parallelism in Uniprocessor System? Explain about Flynn's Classification of Parallel Processors. 8

b) What are the common hardware-related and software-related performance issues that can arise in multi core systems and how do they impact computational efficiency? 7

7. Write short notes on: **(Any two)** 2×5

a) Floating point arithmetic

b) Register Windowing

c) GPU and TPU