Model Question Paper

Seventh Semester B.E. Degree Examination (2021-22)
ADVANCED COMPUTER ARCHITECTURES

Time: 03 Hours   **Max Marks: 100**

Note: Answer any FIVE full questions, choosing ONE question from each Module.

MODULE-1

1   a. Describe Flynn's classification of computer architecture.   (10 Marks)

b. With a neat diagram, describe the three shared memory multi processor models.

(10 Marks)

OR

2   a. With respect to dependencies between the instructions, discuss the following with example:
   (i) Data dependency
   (ii) Control dependency
   (iii) Resource dependency   (10 Marks)

b. Illustrate the architecture of vector super computer with neat diagram.   (10 Marks)

MODULE-2

3   a. Distinguish between typical RISC and CISC processor architectures.   (10 Marks)

b. Illustrate the architectural features of VLIW processor with timing diagram. How

does it differ from superscalar processor?   (10 Marks)

OR

4   a. With a neat diagram, discuss the hierarchical memory technology.   (10 Marks)

b. Discuss the virtual memory models for multiprocessor system.   (10 Marks)

MODULE-3

5   a. Discuss bus arbitration and its types in multiprocessor systems.   (10 Marks)

b. Illustrate sequential and weak consistency models.   (10 Marks)

OR

6   a. Discuss any two mapping techniques.   (10 Marks)

b. For the reservation table of a non-linear pipeline shown below:

	1	2	3	4	5	6
S_1	X					X
S_2		X			X	
S_3			X			
S_4				X		
S_5		X				X

(i) What are the forbidden latencies? Write initial collision vector.

(ii) Draw the state transition diagram.

(iii) List all simple cycles and greedy cycles.

(iv) Determine MAL. (10 Marks)

MODULE-4

7   a. Illustrate snoopy protocols with its approaches. (10 Marks)

   b. With a neat diagram, describe the implementation models of SIMD. (10 Marks)

OR

8   a. Discuss different vector access memory schemes. (10 Marks)

   b. Illustrate the processor consistency models. (10 Marks)

MODULE-5

9   a. Define parallel programming models. Discuss any two models. (10 Marks)

   b. With a neat diagram, illustrate different phases of parallelizing compiler.(10 Marks)

OR

10   a. Describe testing algorithm for dependence testing. (10 Marks)

   b. Illustrate the dynamic scheduling of a pipeline using Tomasulo's algorithm.

(10 Marks)