Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY
(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

DEPARTMENT OF COMPUTER ENGINEERING

UNIT TEST-II

Class: SE **Semester: III** **Subject: DL&COA**
Date: 19/10/2022 **Time:2:30 - 4:00 pm** **Max marks: 40**

Note the following instructions

1. **Attempt all questions (Q.1, Q.2, Q.3)**
2. **Draw neat diagrams wherever necessary.**
3. **Write everything in ink (no pencil) only.**
4. **Assume data, if missing, with justification.**

Q.1	Attempt any two			
(a)	Describe hardwire control unit and specify its advantages.	[5]	CO4	L2
(b)	Explain a micro-program for fetch routine of instruction cycle	[5]	CO4	L2
(c)	Compare Hardwired and microprogrammed control unit	[5]	CO4	L2
(d)	Explain different techniques for design of control unit of computer	[5]	CO4	L2
Q.2(a)	Consider a direct mapped cache of size 512 KB with block size 1 KB. There are 7 bits in the tag. Find- 1. Size of main memory, 2. Tag directory size	[10]	CO5	L3
	OR			
Q.2(a)	Consider a fully associative mapped cache of size 16 KB with block size 256 bytes. The size of main memory is 128 KB. Find- 1.Number of bits in tag, 2. Tag directory size	[10]	CO5	L3
Q.2(b)	Determine the characteristics of memory.	[5]	CO5	L2
	OR			
Q.2(b)	Show the memory hierarchy in computer system.	[5]	CO5	L2
Q.3 (a)	Illustrate Flynn's classification.	[10]	CO6	L2
	OR			
Q.3 (b)	Illustrate various types of pipeline Hazards.	[10]	CO6	L2
Q.3 (c)	The microprocessor has integer and floating-point instructions. The floating-point instructions are enhanced and 3 times faster than before and integer instructions are unenhanced. If there are 20% of floating instructions in the program then find the overall speedup.	[5]	CO6	L3
	OR			
Q.3 (d)	A program having 10 instructions is executed on non-pipeline and pipeline processors. All instructions are of same length and having 4 pipeline stages and time required to each stage is 1ns. Calculate the time required to execute the program on non-pipeline and pipeline processor and calculate speed-up.	[5]	CO6	L3