Total No. of Questions – [3]

Total No. of Printed Pages:

G.R. No.	

PAPER CODE	U212-213(ESE-DSY)

JULY 2023 (ENDSEM) EXAM

S.Y. B.Tech (DSY)(AI & DS) (AY 2022-23 SEMESTER - I)

COURSE NAME: MICROPROCESSORS

COURSE CODE: ADUA21203

(PATTERN 2020)

Time: [1Hr] [Max. Marks: 30]

(*) Instructions to candidates:

1) **Use of scientific calculator is allowed**
2) **Use suitable data where ever required**
3) **All questions are compulsory**

Question No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) How the page directory, page table, and page offset are used to translate virtual addresses to physical addresses? Justify your answer with example.	[4]	[CO 5]	[3] Apply
	b) What is the purpose and operation of the 80386's protected mode segments? Discuss the segment descriptor tables, segment registers, and how they contribute to memory protection and multitasking.	[6]	[CO 4]	[1] Remember
	OR			
	c) Identify the addressing modes of following instructions and explain how these are executed by processor. • i. MOV CX, 4929 H • ii. MOV AX, [1592H] • iii. MOV AX, [BX]	[6]	[CO 4]	[2] Understand
Q.2	a) What is the significance of following bits in page directory ? i. A ii. P iii. U/S iv. R/W	[4]	[CO 5]	[1] Remember

	b) Describe the role and functioning of the Global Descriptor Table (GDT) and the Local Descriptor Table (LDT) in the 80386 microprocessor's memory management. How do they facilitate memory segmentation?	**[6]**	[CO 5]	[2] Understand
	OR			
	c) A paging scheme uses a Translation Lookaside buffer (TLB). A TLB access takes 10 ns and a main memory access takes 50 ns. Calculate the effective access time (in ns) if the TLB hit ratio is 90% and there is no page fault.	**[6]**	[CO 5]	[3] Apply
Q.3	a) Explain the two types of protection mechanisms implemented in the 80386DX processor.	**[4]**	[CO 5]	[1] Remember
	b) Describe the mechanisms implemented at the segment level to enforce protection in the 80386 processor.	**[6]**	[CO 5]	[3] Apply
	OR			
	c) Describe how the 80386DX processor handles memory segmentation and its significance in the protection mechanism.	**[6]**	[CO 5]	[3] Apply