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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May 2019

B.Tech IV Semester (CSE)

COURSE CODE: 10B11CI401

MAX. MARKS: 35

COURSE NAME: Microprocessor and Controllers

COURSE CREDITS: 04

MAX. TIME: 2 hr.

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

Q1. Determine the contents of AL register after the following instructions are executed: [5]

(i) XOR AX,AX	(ii) MOV BX,1234H	(iii) MOV AX,0705H
STC	PUSH BX	ADD AL,AH
ADC AX,AX	POP AX	DAA
DEC AX	XOR AX,00FFH	

(iv) MOV AX,0F73H	(v) PUSH 1234H
TEST AX,30H	PUSH 5678H
JZ EXIT	MOV BP,SP
INC AX	MOV AX,[BP+2]
EXIT: RET	

Q2. a) What is DMA and its different modes of operation? How does microprocessor program execution changes on a system that supports DMA? [3]

b) Explain MMX technology used in Pentium processors. [2]

Q3 a) With a suitable sketch explain the architecture of math co-processor 8087. [3]

b) Describe the salient features of Pentium processor. [2]

Q4. Differentiate between microprocessor and microcontroller. Explain the detailed architecture of 8051 microcontroller with a neat sketch. [5]

Q5. A 256kB memory is composed of eight 32kB RAMs. The address range of RAMs are as follows: [5]

(i) 00000-07FFF, (ii) 08000-0FFFF, (iii) 10000-17FFF, (iv) 18000-1FFFF, (v) 20000-27FFF,  
(vi) 28000-2FFFF, (vii) 30000-37FFF, (viii) 38000-3FFFF

Design a suitable address decoder circuit for interfacing with 8086 microprocessor.

Q6. What are different modes in which 8254 timer can be operated? Explain its modes with suitable waveforms. [5]

Q7. An 8255PPI is interfaced with an 8086 microprocessor having addresses 70H,72H,74H and 76H for Port-A, Port-B, Port-C and control register, respectively. Write an assembly level program to do the following task. Read two 8-bit numbers from port-A and Port-B and output the sum at Port-C of 8255. [5]