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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B. Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, MAY 2024

ELECTRONICS AND COMMUNICATION ENGINEERING

IV Semester

EC7451 - MICROPROCESSORS AND MICROCONTROLLERS

(Regulation 2015)

Time: 3hrs

Max.Marks: 100

**PART- A (10 x 2 = 20 Marks)**

(Answer all Questions)

Q. No	Questions	Marks
1	What is the importance of address latch enable (ALE) signal in 8085?	2
2	Outline IN instructions of 8085 with example.	2
3	How is 8086 architecture designed to incorporate pipelining?	2
4	Write the procedure, to generate 20 bit address in 8086.	2
5	Draw the timing diagram, with necessary control signals to generate a square wave using IC 8254.	2
6	Differentiate synchronous and asynchronous communication.	2
7	Outline SCON special function register of 8051.	2
8	How many register banks are available in 8051?	2
9	What is the use of PWM in DC motor speed control?	2
10	List four applications of ADC.	2

**PART- B (5 x 13 = 65 Marks)**

(Restrict to a maximum of 2 subdivisions)

Q. No	Questions	Marks
11 (a)	With a neat diagram, explain in detail the architecture of 8085.	13
(OR)		
11 (b)	Design a circuit to interface 4KB of RAM and 8KB of ROM with 8085 using 2:4 decoder and explain memory mapped I/O interfacing. Write the memory mapping address for each memory.	13
12 (a)	With a neat diagram, explain the minimum and maximum mode operation in 8086.	13

12 (b)	Explain all the addressing modes of 8086 with example.	13
13 (a)	With a neat diagram, explain the architecture of the interfacing IC 8255.	13
<b>(OR)</b>		
13 (b)	Draw and explain the block diagram of IC 8279 - keyboard and display controller.	13
14 (a)	With a neat diagram explain, in detail the internal architecture of 8051 microcontroller.	13
<b>(OR)</b>		
14 (b)	Draw and explain timer/counter operating modes of 8051.	13
15 (a)	With a neat diagram, explain the stepper motor and its interfacing method with 8051 microcontroller. Write a program to rotate the motor in clockwise direction.	13
<b>(OR)</b>		
15 (b)	Write a program to generate rectangular wave using 8051, interfaced with DAC. Draw the interfacing diagram with flow chart.	13

**PART- C (1 x 15 = 15 Marks)**

(Q.No. 16 is Compulsory)

Q. No	Questions	Marks
16	Given, the content of A=FFH, and PC=5678H. Draw the timing diagram for the 8085 instruction LDA 2255, Assume all other required and relevant details. Opcode for LDA is "3A".	15

