		Reg.	No.												
	Question Paper Co	de		13243		1									
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	B.E. / B. Iech DEGREE EXAMINATIONS, NOV / DEC 2024														
	Flootnoning and Inst	1 Senie		- F											
	Electronics and Insti	rumen	tatioi	n E	ngu	ieer	'ing								
	(Common to Instrumenta	tion an	d Co	ntro	ol Er	ngin	eeri	ng)						
	20EIPC502 - MICROPROCESS	OR A	ND N	AI (CRC	C C)NT	R	OLI	LER	S				
	Regula	tions -	2020												
Dı	uration: 3 Hours										M	Max. Marks: 100			
	PART - A (MCQ) Answer AL	(20 × 1 .L Que	1 = 2(estion) M s	Iark	s)							Marks	K – Level	со
1.	If following set of instruction is executed then which statements are true								1	K2	CO1				
	MVI A ,#(30) _H														
	ANI #(30) _H				0					(0.0)					
	(a) The content of accumulator is $(30)_{\rm H}$ (f)	b) The	conte	ent	ofa	ccur	nula	ito	r 1s	(03)	Η				
2	(c) The content of accumulator is $(40)_{\rm H}$ (c)	a) The	conte	ent	or a	ccur	nula	ito	r 15	(60)	Η		1	K1	<i>CO1</i>
۷.	(a) 2 (b) 3	(c) 4	s ale	ma	SKat	ne:	(ď) 5					1		001
3.	In 8085, which of the following addressing meth	nods w	as no	t us	ed?		(u)					1	K1	CO1
	(a) Immediate (b) Relative (c)	Registe	er ind	ire	ct		(d)	Reg	giste	r				
4.	Evaluate the following statements about instruct	ion PU	SH F	Rp			Ì						1	K2	CO1
	1. This is a 1-byte instruction														
	2. The stack pointer is decremented														
	3. The contents of the higher-order register are	copied	to th	ne l	ocat	ion	sho	wn	ı by	the	stac	ck			
	pointer register	(h) O	ml v a	toto		+ 2	ia ta								
	(a) All statements are folse (b) Only statement 2 is true (c) All statements are folse (d) Only statement 3 is true														
5.	8051 microcontroller has a data bus of bit.	(u) O	iny s	ian		n J	15 11	uc					1	K1	CO2
	(a) 2 (b) 4 (c	c) 6					(ď) 8							
6.	Match the following features of 8051	/											1	K2	<i>CO2</i>
	A.ROM i.2 in number														
	B.RAM ii.4K bytes														
	C.Timer 111.128 bytes	\ ^ • 1	о ·· /	a •		(1)		·т	. .	a					
7	(a) A-111, B-11, C-1 (b) A-11, B-111, C-1 (c	5) A-1, I	B-11, (U-11	1	(a)	A-1	1, E	3-1,	C-11	1		1	K1	CO^2
7.	(a) AND (b) NAND (c)	NOR				(ċ	1) O	R					-		002
8.	RI/TI is a interrupt.	, 1010				(•	•) •						1	K1	CO2
	(a) Data transfer (b) Serial communication	n (c)	Exte	rna	1		(d)	In	tern	al					
9.	How many data lines in total are there in the 825	55 PPI	IC?										1	K1	CO3
	(a) 32 data lines (b) 24 data lines (c) 8 d	data lir	nes	(d)) No	ne c	of th	e n	nen	tion	ed		_		~ ~ •
10.	When a key is pressed, a debounce logic comes	into op	eratio	on i	in								Ι	K2	CO3
	(a) Scanned keyboard special error mode (b) Seenned keyboard with N Key rellever														
	(c) Scanned keyboard mode with 2 key lock out														
	(d) Sensor matrix mode														
11.	What is the basic function of a timer?												1	K1	CO3
	(a) All of the mentioned (b) To p	rovid	e d	elay										
	(c) To give frequency to device (d	l) To a	ccess	the	e ext	erna	ıl da	ta	spa	ce					
12.	Which IC is used to perform parallel communica	ation of	perati	ion	s?	,	1) 01	_^					1	K1	CO3
	(a) 8255 (b) 8259	(c) 82	54			(0	1) 82	279	ł						
<i>K1</i> –	- Remember; K2 – Understand; K3 – Apply; K4 – Analyze;	$K5 - E_1$	valuate	e; K	6 – 6	Creat	е							132	43

13.	Recall the option that matches the function of the instruction CJNE A,#00001111b,	1	K2	<i>CO4</i>				
	ROW1							
	(a) It masks the bit and then jumps to the label where ROW1 is written.(b) It makes the value of the accumulator 0FH and then jumps at the address where ROW1 label is written.							
	(c) It compares the value of the accumulator with 0FH and jumps to the location where							
	ROW1 label is there if the value becomes equal.							
	(d) It compares the value of the accumulator with 0FH and jumps to the location where							
	ROW1 label is there if the value is not equal.							
14.	In the keypad programming the programmer needs to for identifying which key is	1	K2	<i>CO</i> 4				
	(a) ground all the pins at a time (b) ground any two pins at a time							
	(c) ground the pins one by one (d) connect all the pins to power supply							
15.	Which motor rotates from 0 to a maximum of 180 degrees							
-	(a) Continuous motion servo motor (b) Standard/Limited Motion servo motor							
	(c) Stepper motor (d) None of the mentioned							
16.	The symbol '#' represent in the instruction MOV A, #55H means	1	K1	<i>CO</i> 4				
	(a) Direct datatype (b) Indirect data type (c) Indexed data type (d) Immediate data type			<i></i>				
17.	Which of the following is not a 32 bit processor?	Ι	KI	<i>CO</i> 5				
10	(a) Windows / (b) Linux (c) Windows 8 Vista (d) 8086	1	K?	<i>C</i> 05				
10.	1. It has relatively few instructions	1	<u>K2</u>	005				
	2. It can have relatively few addressing modes							
	3. CISC stands for Complex Instruction Set Computer.							
	(a) All statements are true (b) Only 1st and 2nd statement are true							
	(c) All statement are false (d) Only 3rd statement is true							
19.	Which part of the computer is directly involved in executing the instructions of the	1	K2	<i>CO5</i>				
	computer program?							
20	(a) Processor (b) RAM (c) ROM (d) Hard disk	1	K1	<i>C</i> 05				
20.	(a) CISC (b) RISC (c) ISA (d) ANNA	1	K1	005				
	PART - B ($10 \times 2 = 20$ Marks)							
	Answer ALL Questions							
21.	1. List the general-purpose registers of 8085 microprocessor.							
22.	2. Compare the instructions CMP and SUB.							
23.	3. What are register banks in an 8051 microcontroller?							
24.	24. Find the addressing modes for the instructions below							
	ADD A,R7							
	ADD A,55H							
	MOV A,@R0							
25	MOVC A, (a) A+DPTR.	2	va	CO^{2}				
25.	5. Explain the cascaded mode of the 82.59 programmable interrupt controller.							
26.). State the functions of IC 8254.							
27.	7. State the need for a key debouncing circuit in the keyboard interface.							
28.	28. Deduce some examples of input devices to microprocessor-based systems.							
29.	9. What are the characteristics of an Embedded system?							
30.	0. Illustrate the concept of pipelining with an example.							

PART - C ($6 \times 10 = 60$ Marks)

Answer ALL Questions

31.	a)	What are interrupts? Explain the interrupt Structure of 8085 processor. OR				
	b)	Explain the timing diagram for the instruction MVI C, #35 H.	10	K2	CO1	
32.	a)	Draw and explain the architecture of the 8051 microcontroller. OR	10	K2	<i>CO2</i>	
	b)	Explain Data transfer and arithmetic instructions of 8051 Microcontroller.	10	K2	<i>CO2</i>	
33.	a)	Draw and explain the functional block diagram of 8254 timer. OR	10	K2	СО3	
	b)	Explain the interfacing of DAC with 8051 or 8085 with a neat diagram and write a program for generating any typical waveform.	10	К2	СО3	
34.	a)	Design and illustrate a block diagram for interfacing a stepper motor with an 8051 microcontroller. Additionally, provide an assembly language program to control the stepper motor through this setup.	10	К3	CO4	
	b)	Illustrate the process of interfacing an LCD display with an 8051 microcontroller and provide a detailed assembly language program for displaying characters on the LCD.	10	K3	CO4	
35.	a)	Compare the architectures of RISC and CISC processors and illustrate their advantages and disadvantages in modern computing systems. OR	10	К2	CO5	
	b)	Explain the Architecture of a 16 bit Microprocessor in detail. Also explain its features and Applications.	10	К2	CO5	
36.	a) i)	Explain an Assembly Language Program using 8051 microcontroller to perform multiplication.	5	K2	<i>CO4</i>	
	ii)	Discuss about the types of embedded systems. OR	5	K2	CO5	
	b) i)	Illustrate a block diagram for interfacing a servo motor with an 8051 microcontroller	5	K2	<i>CO4</i>	
	ii)	Explain various functional blocks of embedded systems.	5	K2	CO5	