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Code No: 155CF **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, August - 2022
MICROPROCESSORS AND MICROCONTROLLERS
(Common to ECE, EIE)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Briefly explain register organization in 8086 microprocessor.
b) Describe the memory segmentation and instruction queue. [8+7]

2.a) Define addressing mode and explain the different addressing modes presented in 8086 Microprocessor with examples.
b) Explain while loop and repeat-until structures with an example. [8+7]

3.a) Explain the different assembly programming tools used in 8051 microcontroller in detail.
b) Discuss the register set of 8051. [8+7]

4.a) Explain the different Instruction set of 8051 in detail.
b) Explain various modes of operation of timer /counters in 8051. [8+7]

5.a) Explain the concept of On board Communication Interfaces-I2C Bus along with diagram.
b) Write short notes on ADC interfacing with 8051 Microcontroller. [8+7]

6. Explain the following terms in detail:
a) UART
b) USB. [8+7]

7.a) Draw and explain the interrupt vector table of ARM Processor in detail.
b) List out different Branch instructions of ARM Processor and explain. [8+7]

8. List out different futures of CORTEX Processor and explain its advantages. Compare with ARM processor. [15]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, January/February - 2023
MICROPROCESSORS AND MICROCONTROLLERS
(Common to ECE, EIE)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	List the dedicated interrupts of 8086 microprocessor.	[2]
b)	Define macro with example.	[3]
c)	What is the difference between microprocessor and microcontroller?	[2]
d)	Explain PSW of 8051 microcontroller.	[3]
e)	List out the important features of the A/D converter.	[2]
f)	What is the significance of EA pin?	[3]
g)	What is 'Thumb' in ARM processor?	[2]
h)	Differentiate between CPSR and SPSR.	[3]
i)	Write two features of Cortex processors.	[2]
j)	Briefly explain about memory map of Cortex processors.	[3]

PART – B

(50 Marks)

2.a)	Explain the concept of segmented memory. What are the advantages?	
b)	Describe the implementation of pipelined process of 8086.	[5+5]
	OR	
3.a)	Write an assembly language program to count number of even and odd numbers in the array of sixteen bit numbers.	
b)	List out the shift and rotate instructions of 8086 microprocessor with examples.	[5+5]
4.a)	Explain the concept of memory organization of 8051 microcontroller.	
b)	Explain the addressing modes in 8051 microcontroller.	[5+5]
	OR	
5.a)	Draw the pin Diagram of 8051 microcontroller and explain the function of each pin in detail.	
b)	Write a program to count the numbers of 1's and 0's in 8-bit data stored.	[5+5]
6.a)	Draw the internal RAM organization of 8051 microcontroller and explain it.	
b)	Explain RS-232 Standards.	[5+5]
	OR	
7.a)	Explain the timer control register and timer mode control register.	
b)	Discuss about 8051 serial port programming.	[5+5]

8.a) Draw the architectural block diagram of ARM and explain data flow referring each unit.
b) Explain the working of "Barrel shifter" with an example instruction and diagram. [5+5]

OR

9.a) Explain the three-stage pipelining implemented in ARM processor.
b) Explain the different exceptions in ARM processors. [5+5]

10.a) What are the advantages of Cortex processors.
b) Explain the architecture of Cortex processor. [5+5]

OR

11.a) What are the advantages of OMAP processors.
b) Explain the architecture of OMAP processor. [5+5]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, March - 2021
MICROPROCESSORS AND MICROCONTROLLERS
(Common to ECE, EIE)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Discuss the following addressing modes with examples:
i) Direct ii) Register indirect iii) Base plus index iv) immediate v) Scaled indexed.
b) Write an ALP using 8086 instructions to count the numbers of zeros in a given 8-bit number. [8+7]

2.a) Explain structure of 8086 interrupt vector table with neat diagram.
b) Discuss the functions of segment registers of 8086 with examples. Give some advantages of memory segmentation. [7+8]

3.a) State various modes available for timers in 8051.
b) Explain how interrupts are prioritized? [8+7]

4.a) With example, explain the arithmetic and logic instruction of 8051 microcontroller.
b) Explain the different addressing modes of 8051. [7+8]

5.a) Draw and Explain interfacing of DAC with 8051. Write a program to generate square wave.
b) Explain bit addresses for RAM. [8+7]

6.a) Explain the bit addresses for I/O of 8051
b) Explain the baud rates of serial communication in 8051. [7+8]

7.a) Describe the pipeline operation of ARM.
b) Which are the different features of ARM instruction set that make it suitable for embedded applications. [7+8]

8.a) With a neat diagram, explain the different general purpose registers of ARM Processors.
b) Discuss about the OMAP processor in detail. [8+7]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, September - 2021
MICROPROCESSORS AND MICROCONTROLLERS
(Common to ECE, EIE)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

1.a) Draw the Register organization of 8086 Microprocessor and explain the operation of each register.
b) Discuss about different instruction formats of 8086 with examples. [8+7]

2. With a neat diagram, explain the architecture of 8086 microprocessor. [15]

3.a) Explain the memory organization of 8051 microcontroller with neat diagram.
b) Write a program to transfer a byte from code memory address 1000H to internal RAM and external RAM address 10H and 1000H respectively. [9+6]

4. Explain the instruction set of 8051 microcontroller with suitable examples. [15]

5.a) Develop an assembly language program for key identification and key-code generation.
b) Explain the interfacing procedure of an 8-bit ADC. [7+8]

6.a) Discuss how wire-AND connection of all SDA and SCL lines help in bus arbitration.
b) How in and out data transaction takes place in USB? Give operational overview. [7+8]

7.a) What is Pipelining. Explain in detail schematically with respect to ARM processor.
b) Explain the ARM Single-Register and Multiple-Register load-store addressing modes with example. [8+7]

8. Explain the architecture of CORTEX processor with neat diagram. [15]

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