

**R16**

**Code No: 135BF**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year I Semester Examinations, July/August - 2023**

**MICROPROCESSORS AND MICROCONTROLLERS**

**(Electrical and Electronics Engineering)**

**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) How many general purpose registers are there in 8086 microprocessor? List them. [2]
- b) What is the processing of obtaining the physical memory address in 8086 microprocessor? [3]
- c) What is the sequence of interrupt priority of 8051 microcontroller? [2]
- d) Give an overview of 8051 microcontroller. [3]
- e) Mention the difference between RAM and ROM. [2]
- f) What is the difference between ADC and DAC? Where the ADC and DAC will be useful ? [3]
- g) What is purpose of usage of banked registers in ARM processor? [2]
- h) Define about the privileged mode and non-privileged mode in processor mode. [3]
- i) Mention the features of low cost debug solution in CORTEX processor. [2]
- j) List out the main features of CORTEX processor. [3]

**PART – B**

**(50 Marks)**

- 2.a) Explain the following instruction set of 8086 microprocessor:  
i) NEG ii) DAA iii) ADC iv) CBW v) SHR
- b) Explain about the assembler directives used in 8086 microprocessor. [5+5]  
i) DB ii) PROC iii) DUP iv) EQU v) SEGMENT

**OR**

3. Explain the addressing modes in 8086 microprocessor. [10]
4. Draw and explain the architecture diagram of 8051 microcontroller. [10]

**OR**

- 5.a) Explain any one special function register of timer control of 8051 microcontroller.
- b) Explain PCON special function register of 8051 microcontroller. [5+5]
- 6.a) Explain about the usage of SPI bus.
- b) How it is possible to interface external communication using RS232? Explain. [5+5]

**OR**

- 7.a) Explain the architecture of UART.
- b) Draw the picture of interfacing UART to 8051 microcontroller. [5+5]

QA QA QA QA QA QA QA Q

8.a) Describe about the load store instructions in ARM processor.

b) Write a brief note on Thumb instruction.

[5+5]

QA QA QA QA OR QA QA QA Q

9.a) Explain about the software interrupt instructions in ARM processor.

b) Discuss about the program status register instructions used for ARM processor.

[5+5]

10. Draw and explain the architecture of open multimedia applications platform processor.

[10]

**OR**

11. Discuss about memory protection unit, real time clock in OMAP processor.

[10]

QA QA QA QA QA QA QA Q

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QA QA QA QA QA QA QA Q

QA QA QA QA QA QA QA Q

QA QA QA QA QA QA QA Q

QA QA QA QA QA QA QA Q

QA QA QA QA QA QA QA Q