R18 Regulation *Subject code: 2P6DB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.TechVI Semester Regular/Supplementary Examinations, June 2022

MICROPROCESSORS AND MICROCONTROLLERS

(Electronics and Communication Engineering)

Maximum Marks: 70 Date:18.06.2022 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 List features of 8086 microprocessor

2 Identify the size of the 8086 instruction queue and explain how does queue speed up the processing

3 Explain any F0 and P flag bits of 8051

4 State the function of the following signals of 8051 a) $\overline{EA}$ b) $\overline{PSEN}$

5 State what is RS232?

6 Write short notes on RAM and ROM.

7 Draw the CPSR in ARM.

8 Write short notes on registers in ARM.

9 Mention the features of CORTEX.

10 What is difference between Cortex A, Cortex M and Cortex R series of ARM?

Part-B

Answer All the following questions. (5X10M=50Marks)

11 A. Describe the assembler directives of 8086 microprocessor. [5M]
(i) ASSUME (ii) EQU (iii) LABEL (iv) OFFSET (v) LENGTH
B. Write an ALP to insert a character "L" in the string "REPUBIC" after the character "B" using string manipulation instructions. [5M]

OR

12 A. Evaluate the physical address, if segment base address is 5200H & offset address is 4510H. [5M]
B. Explain in detail about Minimum mode signal description of 8086. [5M]

13 A. Describe about the timer mode 0 with a neat sketch in 8051 microcontrollers. [5M]
B. Discuss details of the Timer block, Serial port block and Interrupt control block in the architecture of 8051. [5M]

OR

14 Explain in detail about the functions of Port 0, Port1, Port 2 and Port 3 of 8051. [10M]

15 Sketch the block diagram of key Board Interfacing and Write a assembly language program to interface keyboard using 8051. [10M]

OR

16 A. Explain about the architecture of UART to be connected to 8051 microcontrollers. [5M]
B. Explain about memory interfacing for external RAM and ROM interface to 8051. [5M]

17 A. Describe the Thumb instructions in ARM. [5M]
B. Mention the details about the data processing instructions in ARM processor. [5M]

OR

18 Explain the load store instructions in ARM. [10M]

19 Explain the architecture of CORTEX processor. [10M]

OR

20 Explain how OMAP processor differs from CORTEX processor. [10M]