

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

18RA46

Fourth Semester B.Tech. Degree Examination, July/August 2022 Microcontroller

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With a neat diagram, explain the architecture of 8051 and its features. (10 Marks)
- b. Define embedded system and write the characteristics of embedded system. (06 Marks)
- c. Distinguish between microprocessor and microcontrollers. (04 Marks)

OR

- 2 a. Explain the memory organization in 8051. (08 Marks)
- b. Write the bit pattern and functions of PSW in 8051. (06 Marks)
- c. Explain the following 8051 pin functions : (06 Marks)
i) EA ii) ALE iii) RST.

Module-2

- 3 a. Classify and explain the various addressing modes in an 8051 along with example. (12 Marks)
- b. Explain the various types of JUMP instruction along its range. (08 Marks)

OR

- 4 a. Explain the following instructions : (10 Marks)
i) MOV A, @A + DPTR
ii) DJNZ
iii) A CALL
iv) MUL AB
v) RRC A.
- b. Write an ALP to find the given number is odd or even. (06 Marks)
- c. List out and explain any four single bit instructions. (04 Marks)

Module-3

- 5 a. Explain how stack is implemented in 8051. (08 Marks)
- b. Interface simple switch and LED to port 1.2 to switch ON/OFF LED with respect to switch status. (08 Marks)
- c. What is subroutive and mention the advantage of subroutive. (04 Marks)

OR

- 6 a. Explain Port – 0(P0) along with its functions. (06 Marks)
- b. Write a program to perform the following : (06 Marks)
i) Keep monitoring pin P0.1 until it becomes high
ii) When P0.1 becomes high, read in the data from Port 1
iii) Send a low – to – high pulse on P0.2 to indicate that the data has been read.
- c. List out the instructions used to reading a latch in 8051. (08 Marks)

Module-4

- 7 a. Explain TMOD and TLON register. (08 Marks)
b. Write the steps involve during the data receive serially in 8051. (06 Marks)
c. Write a 'C' program for 8051 to transfer the message "GOODLUCK" serially at band rate of 9600, 8 bit data with 1 stop bit, do this continuously. (06 Marks)

OR

- 8 a. Explain the format of SCON register in details. (08 Marks)
b. Explain the functions of RS232C pins of DB-9 connector. (08 Marks)
c. What are the advantages of serial communication over parallel communication? (04 Marks)

Module-5

- 9 a. Explain IE and IP register formants. (08 Marks)
b. Write a 'C' program to generate a square waveform on a port 0 with interfacing diagram. (06 Marks)
c. Classify the explain interrupt sequence along with interrupt vector table. (06 Marks)

OR

- 10 a. Write an ALP to perform a stepper motor rotation along with interfacing diagram. (08 Marks)
b. Name the 14 pins present in LCD and show how it can be interfaced to micro controller 8051 with P1 connected to data lines. (06 Marks)
c. Write a note on ADC with important pin function. (06 Marks)

* * * * *