BACHELOR OF SCIENCE (COMPUTER SCIENCE) (CBCS - 2018 COURSE)
S.Y.B.Sc.(Computer Science) Sem-IV :SUMMER- 2022
SUBJECT : 8051 MICROCONTROLLER

Day : Monday | Time : 03:00 PM-06:00 PM
Date : 11/7/2022 | **S-20107-2022** | Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw diagram **WHEREVER** necessary.

Q.1 Answer **ANY TWO** of the following: **(12)**

a) Draw the bit format of SCON register and give the function of each bit.

b) List all the register used in 8051 microcontroller and explain the function of each in brief.

c) Draw and explain the bit format of PSW register of 8051 microcontroller.

Q.2 Answer **ANY TWO** of the following: **(12)**

a) Explain any three addressing modes with one example of each.

b) Draw and explain the functional block diagram of 8051 microcontroller.

c) i) Draw diagram for interfacing of 8051 microcontroller to DAC .
ii) If digital input is FCH, then find the output voltage if I_{ref} = 2 mA and R=10 KΩ

Q.3 Answer **ANY TWO** of the following: **(12)**

a) Explain with example different rotate instructions in 8051 microcontroller.

b) Draw and explain the interfacing action of stepper motor with 8051 microcontroller.

c) Explain the alternate functions of port 3 of 8051 microcontroller.

Q.4 Answer **ANY THREE** of the following: **(12)**

a) Explain the following pin function of 8051 microcontroller
i) XTAL1 and XTAL2 ii) $\overline{EA}$ iii) ALE

b) Explain the interrupt system of 8051 microcontroller.

c) Draw the format of TMOD register and write the function of each bit.

d) Write a program to generate a square wave of 50 % duty cycle on P1.5 bit. Use timer 0 to generate the time delay.

Q.5 Answer **ANY FOUR** of the following: **(12)**

a) Explain the following instructions:
i) MOV A, # 55H ii) CLR A iii) MUL AB

b) Write an assembly language program to convert hexadecimal number to its decimal equivalent.

c) State the difference between the following instructions:
i) ADD and ADDC
ii) MOV A,# 00H and MOV A, 00H

d) Write a 'C' program to read status of port P1.3 and save it in memory location 42H.

e) State and explain any three assembler directives.

f) i) If A=54H, what will be the content of A after the execution of the instruction CPL A
ii) Indicate the selection mode and timer selected for the instruction MOV TMOD, #20H.

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