BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)
B.Tech.Sem - IV Electronic & Communication : WINTER- 2022
SUBJECT : MICROCONTROLLER & APPLICATIONS

Day : Friday | Time : 02:30 PM-05:30 PM

Date : 25-11-2022 | **W-24602-2022** | Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY**
2) Figures to the right indicate **FULL** marks.
3) Use of **CALCULATOR** Allowed.

Q.1 a) What do you mean by a processor? Which are the essential units of processor? Mention the different types of processors? **(06)**

b) State the characteristics of Static RAM. **(04)**

OR

Q.1 a) List the criteria for selection of processor and memory for microcontroller based system with suitable example. **(06)**

b) Explain the following terms: **(04)**
(i) ALU (ii) CPU (iii) Registers (iv) Bus

Q.2 Draw the architecture of 8051 microcontroller and explain memory mapping of 8051. **(10)**

OR

Generate a square wave with ON time of 3ms and OFF time of 10ms on all pins of PORT 0.Assume crystal = 11.0592MHz. **(10)**

Q.3 Write a code to serially transfer "HELLO" continuously with baud rate 9600.Explain how to calculate baud rate. **(10)**

OR

Draw interfacing diagram of 16x2 LCD with 8051 microcontroller and write a code to display "PUNE" on line 1 of LCD at the center. **(10)**

Q.4 Explain the various addressing modes of AVR microcontroller with suitable example. **(10)**

OR

Explain in detail the data memory organization in Atmega32 microcontroller. **(10)**

Q.5 State the features of Atmega32 ADC and discuss steps in ADC programming. **(10)**

OR

Draw the interfacing of 8 LEDs with Atmega32 and write C code to flash the LEDs. **(100**

Q.6 How does SPI work? Discuss in detail. How are the slaves connected to master in daisy chaining using SPI protocol? **(10)**

OR

With respect to I2C protocol, with the help of waveform, write the functions of the following: **(10)**

i) START condition
ii) ADDRESS block
iii) READ/WRITE bit
iv) ACK/NACK bit
v) DATA block
vi) STOP condition

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