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

Day: Thursday Time: 10:00 AM-01:00 PM Date: 16-06-2022 S-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** Explain the following a) (i) PROM (ii) EPROM (iii) EEPROM (06)b) What is memory in computer? How is the memory classified? (04)OR What is meant by microcontroller? Draw neat diagram to show the **Q.1** a) (06)building blocks of microcontroller. b) Write the difference between Von Neumann architecture & Harvard (04) architecture. Q.2Explain the structure of internal memory organization of 8051 and why stack (10) pointer is initialized to 07H on reset. Explain the various bits in PSW register and write the code to select R7 register (10) from Bank 3 to store Hex value 10H present in RAM location 30H. Q.3 Interface 4x4 matrix keypad with 8051 and write a code to detect a key pressed (10) and display the value of key pressed on LCD. Draw interfacing diagram and write code to interface ADC with 8051. (10)0.4 Explain the general purpose registers of AVR microcontroller in detail. (10)Draw a neat block diagram and explain the AVR architecture (10)**Q.5** Draw the circuit diagram to show interfacing of LEDs to Atmega 32 and (10) explain the following program. #define F CPU 100000UL #define FOSC 16000000L #include <avr/io.h> #include <util/delay.h> int main(void) DDRB=0Xff; while(1)PORTB=0Xff; delay ms(1000); PORTB=0x00;delay ms(1000); } **OR** With a neat diagram, explain interfacing of LCD with Atmega32.Also (10) write the code to display "PUNE". What is meant by UART? Describe the UART packet used as mode for (04) **Q.6 a**) data transmission. With respect to UART, state and explain: (06)b) (i) Synchronous communication (ii) Asynchronous communication (iii) Baud rate OR

between two devices? Explain with the help of neat block diagram.

What is meant by I2C protocol? How many lines are used to transmit data (10)