Sanjay Ghodawat University, Kolhapur 2019-20
Established as State Private University under Govt. of Maharashtra. Act No XL, 2017 EXM/P/09/01

Year and Program:2019-20
T.Y. B. Tech.

School of Technology

Department of Electrical &Electronics Engineering

Course Code: EET 305

Course Title: Microcontroller and its Applications

Semester – V

Day and Date: Saturday 23/11/19

End Semester Examination (ESE)

Time:3 hr Max Marks: 100
10.30am to 1.30 pm

Instructions:
1) All questions are compulsory.
2)Assume suitable data wherever necessary.
3)Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Attempt the following**			
a)	Differentiate between Microprocessor and Microcontroller.	07	L_3	CO1
	OR			
a)	Draw and explain memory organization of 8051 microcontroller	07	L_3	CO1
b)	Discuss the following instructions in detail I. MOV C, 67H II. MOVC A, @A+DPTR III. SETB BIT IV. CJNE A, @Ri, REL	08	L_2	CO2
	OR			
b)	Write an assembly language program to find number of 1's in a given byte present in the register R7. Store the count of number of 1's in internal RAM memory location 30h.	08	L_2	CO3
Q.2	**Attempt the following**			
a)	Show the interfacing of 16 KB data RAM, 16 KB data ROM and 8 KB program ROM with 8051 microcontroller.	07	L_1	CO3
	OR			
a)	Show the interfacing of 4KB data RAM, and 8 KB data ROM with 8051 Microcontroller.	07	L_1	CO3
b)	With a neat diagram, Interface ADC 0808 to 8051. Analyze the use of each pin of ADC 0808.	08	L_4	CO3

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OR

	b)	Show the interfacing of DAC 0808 with 8051 microcontroller and write an assembly language program to generate sawtooth waveform on port P1 of 8051 Microcontroller. Assume the crystal frequency 11.0592 MHz.	08	L_1	CO2
Q.3		**Attempt any two of the following**			
	a)	What is interrupt, draw and explain the interrupt structure in details.	08	L_5	CO3
	b)	Elaborate mode 2 of Timer 0. Also explain TMOD SFR.	08	L_5	CO3
	c)	Draw and explain the special function registers TCON, SCON, PSW, and IE	08	L_3	CO3
	d)	Draw the interfacing diagram of multiplexed seven segment display with 8051. Write a program to display "SGUK" on seven segment display.	08	L_1	CO2
Q.4		**Attempt any Two of the following**			
	a)	Show the interfacing of temperature sensor LM 35 with 8051 microcontroller and write an assembly language program to read the value of the temperature sensor through ADC 0808 and stores them in the internal RAM memory location 30h.	09	L_2	CO4
	b)	Draw the interfacing diagram for strain gauge and 8051. Also Explain the use of every pin of every component used for interfacing.	09	L_2	CO3
	c)	With neat diagram, explain the interfacing of LDR with 8051. Also write an embedded C or assembly language program to turn OFF the relay if light falls on LDR and vice versa.	09	L_2	CO4
Q.5		**Attempt any Two of the following**			
	a)	Interface a unipolar stepper motor to 8051 using ULN 2003 driver and write a program to rotate the motor in full stepping mode.	09	L_3	CO4
	b)	Interface a 16x2 LCD to 8051 and write an assembly language program to display SGUK on the first line.	09	L_3	CO4
	c)	Draw and explain Reset and Oscillator circuits of 8051 Microcontroller.	09	L_2	CO1

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Q.6 **Attempt any Three of the following**

a)	Explain SPI protocol in detail.	06	L_2	CO1
b)	Develop a system using 8051 to monitor and control the temperature of a plant.	06	L_3	CO2
c)	Develop a system having two 8051 microcontrollers, which can communicate with each other. Write an embedded C or assembly language program to send the data "SGUK" from one microcontroller to another microcontroller.	06	L_1	CO2
d)	Explain in details the common anode and common cathode seven segment LED and show the hexadecimal codes for numbers 0 to 9.	06	L_3	CO3

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