Roll No: ----------

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B. Tech/ ICE | **Semester – V**
Subject (Course): Microprocessor and Microcontroller | **Max. Marks : 100**
Course Code : ELEG 323 | **Duration : 3 Hrs**
No. of page/s: 01

Attempt all questions.

	SECTION A	**Marks[20]**	
1.	Discuss the need of memory segments of 8086.	**[5]**	**CO3**
2.	Write a program to add two sixteen bit numbers with carry, located at some memory locations and also store the result at a memory location, verify your program with 8086.	**[5]**	**CO3**
3.	Draw and discuss the timing diagram of MVI A, 17H with 8085.	**[5]**	**CO1**
4.	Differentiate ALE and BHE for 16 bit microprocessor.	**[5]**	**CO1**
	SECTION B	**Marks[40]**	
5.	Write a program to arrange five eight bit numbers in ascending order with 8085.	**[10]**	**CO2**
6.	How the addressing modes are important for 8051 elaborate with two examples each.	**[10]**	**CO4**
7.	Draw the pin description and architecture of IC 8251, discuss the modes of the same.	**[10]**	**CO3**
8.	Elaborate the pin description, architecture and flag register of 8086.	**[10]**	**CO4**
	SECTION C	**Marks[40]**	
9.	Design an agricultural field monitoring system with 8085, where motor will be 'ON' when soil moisture level of field goes lower than a threshold value of 150. Assume the resolution of ADC attached with microprocessor is 8 bit. Write program mentioning the hexadecimal value of CWR for the same.	**[20]**	**CO3**
10.	Design a room lightning system so that lights of room should be 'ON' as soon as person is entering the room. Write program with 8086.	**[20]**	**CO4**

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	SECTION A	**Marks[20]**	
1.	Discuss the string manipulation instructions of 8086.	**[5]**	**CO3**
2.	Write a program to multiply two sixteen bit numbers with carry, located at some memory locations and also store the result at a memory location, verify your program with 8086.	**[5]**	**CO3**
3.	Differentiate microprocessor and microcontroller, on which basis programmer should choose one of them.	**[5]**	**CO1**
4.	Draw and discuss the timing diagram of STA, 2050H with 8085.	**[5]**	**CO1**
	SECTION B	**Marks[40]**	
5.	Write a program to arrange five eight bit numbers in descending order with 8085.	**[10]**	**CO2**
6.	Draw the pin description and architecture of IC 8253/8254, discuss the modes of the same.	**[10]**	**CO3**
7.	Discuss the minimum and maximum modes of 8086. Discuss is the role of bus controller.	**[10]**	**CO4**
8.	Elaborate the pin description, architecture and flag register of 8051	**[10]**	**CO4**
	SECTION C	**Marks[40]**	
9.	Design a fire monitoring system with 8085, where alarm will be 'ON' when fire sensor detects the fire. Assume output of fire sensor is active low when it detects fire. Write program mentioning the hexadecimal value of CWR for the same.	**[20]**	**CO3**
10.	Design a home automation system with 8086 so that fan of room should be 'ON' as soon as the temperature of room exceeds 20^0C. Control the switching of fan with 12V/1A relay through transistor 2N2222.	**[20]**	**CO4**