Department of Electronics and Communication Engineering, VNIT Nagpur

ECP 426 Advanced microprocessor and interfacing lab exam

Enroll. No.	Sr. No.		Enroll. No.	Sr. No.
BT15ECE009	2		BT18ECE073	28
BT17ECE046	15		BT18ECE074	11
BT18ECE002	27		BT18ECE077	3
BT18ECE003	2		BT18ECE079	17
BT18ECE007	4		BT18ECE082	10
BT18ECE008	20		BT18ECE086	22
BT18ECE010	21		BT18ECE089	14
BT18ECE012	12		BT18ECE090	6
BT18ECE013	9		BT18ECE097	30
BT18ECE016	19		BT18ECE098	25
BT18ECE018	11		BT18ECE099	13
BT18ECE020	11		BT18ECE101	30
BT18ECE022	3		BT18ECE102	5
BT18ECE029	5		BT18ECE104	1
BT18ECE031	25		BT18ECE105	1
BT18ECE034	28		BT18ECE106	2
BT18ECE035	4		BT18ECE109	16
BT18ECE038	15		BT18ECE111	13
BT18ECE040	24		BT18ECE112	21
BT18ECE041	23		BT18ECE113	7
BT18ECE042	10		BT18ECE115	26
BT18ECE043	10		BT18ECE116	14
BT18ECE044	13		BT18ECE117	22
BT18ECE050	14		BT18ECE120	24
BT18ECE053	20		BT18ECE124	9
BT18ECE055	7		BT18ECE126	29
BT18ECE057	12		BT18ECE129	6
BT18ECE058	26		BT18ECE132	17
BT18ECE059	23		BT18ECE135	16
BT18ECE066	18		BT18ECE141	8
BT18ECE067	27		BT18ECE143	19
BT18ECE068	18		BT18ECE147	8
BT18ECE071	12		BT18ECE149	29

Solve the question allotted to you. The question will not be changed under any circumstances.

Sr. no.	Question
1	Write a program to find the maximum number and the minimum number from an array of ten 8-bit numbers. Display these numbers on the screen.
2	Write a program to calculate the factorial of a number. Display the number and its factorial on the screen.
3	Write a program to swap the nibbles in each byte of the AX register. The data in AX should be taken by the user.
4	Calculate the number of one bits in BX and complement an equal number of least significant bits in AX. The data in BX should be taken from the user.
5	Declare a variable containing random 10 nos. of 8-bit data. Declare another variable that contains the starting bit number. Write a program to copy the byte starting at this starting bit number in the AX register. Be careful that the starting bit number may not be a multiple of 8 and therefore the bits of the desired byte will be split into two bytes.
6	AX contains a number between 0-15 which is obtained from the user. Write an ALP to complement the corresponding bit in BX. For example if user enters 6; complement the 6th bit of BX.
7	AX contains a non-zero binary number. Count the number of ones in it and store the result back in AX. Repeat the process on the result (AX) until AX contains one. Calculate in BX the number of iterations it took to make AX one. For example BX should contain 2 in the following case: AX = 1100 0101 1010 0011 (input – 8 ones) AX = 0000 0000 0000 1000 (after first iteration – 1 one) AX = 0000 0000 0000 0001 (after second iteration – 1 one) STOP
8	Write code to find two segments in the whole memory that are exactly the same. In other words find two distinct values which if loaded in ES and DS then for every value of SI [DS:SI]=[ES:SI].
9	Ask the user to enter a string. Convert string from uppercase to lowercase, save in a variable and display.
10	Ask the user to enter a string. Convert string from lowercase to uppercase, save in a variable and display.
11	Write an ALP to find the transpose of a 3x3 matrix. Assume that the matrix elements are available in a variable. Store the elements of transposed matrix in memory.
12	Assume that the word "bumblebee" is stored in memory. Find the number of times 'b' and 'e' occur in it. Store the result of occurrence of each in variables.
13	Assume that the word "bumblebee" is stored in memory. Write an ALP to convert the vowels to uppercase. Store the converted string in a variable.
14	Assume that the word "bumblebee" is stored in memory. Write an ALP to convert the consonents to uppercase. Store the converted string in a variable.
15	ALP to check if a number entered by the user is nibble-wise palindrome or not
16	ALP to get a number from the user and display whether it is odd or even.
17	Write an ALP to enter your first name and display the number of vowels in it.
18	Write an ALP to enter your first name and display the number of consonents in it.
19	Write an ALP to compute and display the square root of a given number using 8087. Assume data is available in a variable.
20	Write an ALP to compute and display the hypotenuse of a right angled traingle using 8087. Assume the other sides are available in memory.
21	Write an ALP to compute area of a circle using 8087 and display it. Assume data is available in a variable.
22	Write an ALP to compute the area of a sphere using 8087 and display it. Assume data is available in a variable.
23	Write an ALP to compute the volume of a sphere using 8087 and display it. Assume data is available in a variable.
24	Design an 8086 based system that can display odd numbers from 1 to 11 if switch A is closed and even numbers from 0 to 8 if switch B is closed.

25	Design an 8086 based system that will display your name until a key is pressed. The display should have "0" if key is unpressed.
26	Design an 8086 based system that can generate an asymmetric square wave of 1ms.
27	Design an 8086 based system that uses two switches to get the functionality of an AND gate. The output should be reflected using and LED.
28	Design an 8086 based system that uses two switches to get the functionality of an OR gate. The output should be reflected using and LED.
29	Write an ALP to compute the volume of a cylinder using 8087 and display it. Assume data is available in a variable.
30	Write an ALP to compute the circumference of a circle using 8087 and display it. Assume data is available in a variable.