SPPU In-Sem Offline Examination-April 2022

Class: SE   Branch:- E&TC   Semester:- II

Subject : Signals and Systems   (Code 204191)

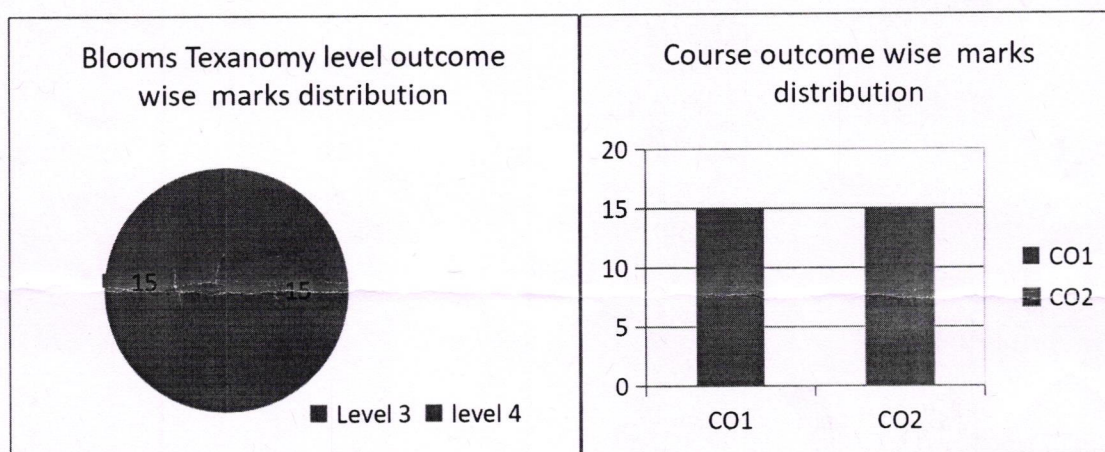Maximum Marks: 30   Duration: 60 Minutes   Date : 04/04/2022

Special Instructions:
1) Answer Q1 or Q2, Q3 or Q4
2) Neat diagrams must be drawn whenever necessary.
3) Figure to the right indicate Full marks.
4) Assume suitable data if necessary.

Q. No.	Question / Description	Marks	CO	BL	PI
1a)	Perform the following operations on the given signal x(t) which is defined as x(t) =u(t)-u(t-4) and Sketch x(-t-1)	4	1	3	1.3.1
1b)	Determine whether the following signal are periodic or aperiodic. If periodic find the fundamental period $x(t)=3\sin(4\pi t)+7 \cos(3\pi t)$	3	1	4	1.3.1
1c)	Find odd and even components of the following signal $X(n)=\{1,0,-1,2,5,6\}$	2	1	3	1.3.1
1d)	Determine whether the given system y(t)= 4x(t)+3 is 1) static or dynamic 2) linear or nonlinear 3) time invariant or time variant 4)causal or non causal	6	1	4	2.1.3
2a)	Sketch the following signals1) $x(t)= 2\delta(t)+u(t+1)+4u(t)$ 2)x(n)=3u(n)+r(n-3)	4	1	4	2.1.1
2b)	Determine whether the following signals are energy or power signal, also calculate its value 1) x(t)=sin(t) 2)$x(n) = (1/2)^n u(n)$	5	1	3,4	2.1.3
2c)	Determine whether the given system y(n)=x(n)+n x(n+1) is 1) static or dynamic 2) linear or nonlinear 3) time invariant or time variant 4)causal or non causal	6	1	3	2.1.3
3a)	Evaluate the convolution integral,if the impulse response of the system is h(t)=u(t) and the input to the system is also unit step.	5	2	4	2.1.2
3b)	Evaluate the convolution sum for two given sequences by using graphical method $x(n)=\{1,2,3,2\}$ and $h(n)=\{1,2,2\}$	5	2	3,4	2.1.2

3c)	Classify whether the following systems are stable,causal and static 1) $h(t)=t\,e^{-t}\,u(t)$ 2) $h(n)=2u(n)-2u(n-5)$	5	2	3	2.1.3
4a)	Using graphical method,evaluate the convolution for $x(t)=u(t)$ and $h(t)=e^{-3t}\,u(t)$	5	2	4	2.1.2
4b)	Determine the convolution sum of two sequences graphically $x(n)=\{1,2,3,2\}$ and $h(n)=\{1,2,2\}$	5	2	3	2.1.2
4c)	Check the stability of the LTI systems whose impulse response are given below 1)$h(t)=e^{4t}\,u(t)$ 2)$h(n)=2\delta(n)-2\delta(n-1)$	5	2	3,4	2.1.3

Blooms Texanomy level outcome wise marks distribution

Course outcome wise marks distribution

BL – Bloom's (Revised) Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

SPPU INSEM OFFLINE EXAMINATION APRIL -2022

Class:- SE(E&TC) **Branch:-** E&TC **Semester:-** II
Subject:- Principles of communication system **Code(204193)**
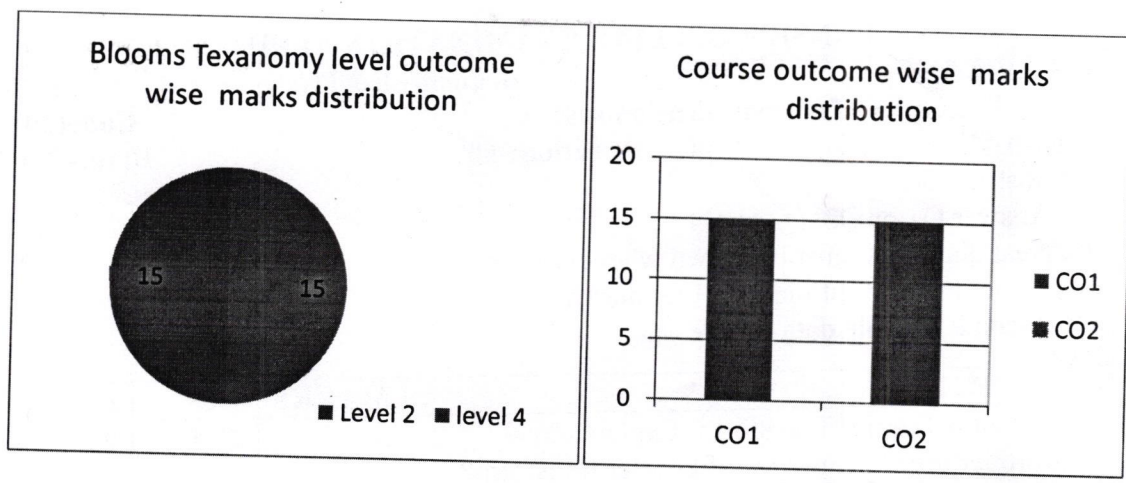**Maximum Marks:-** 30 **Duration:-**60 **Date:-** 7/4/2022
Special Instructions:-

1) Answer Q1 or Q2, Q3 or Q4
2) Neat diagrams must be drawn whenever necessary.
3) Figure to the right indicate Full marks.
4) Assume suitable data if necessary.

Q.NO	QUESTION	MARKS	CO	BL	PI
1.(a)	What is Fourier Transform, Explain any 4 properties of properties of Fourier transform?	5	CO1	2	1.2.1
1.(b)	Obtain the Fourier Transform of the unit step signal	5	CO1	4	2.1.3
1.(c)	What is the role of Repeater? Explain with block diagram working of regenerative repeaters in details	5	CO1	2	1.3.1
OR					
2.(a)	Distinguish Baseband and Bandpass signal	5	CO1	2	1.2.1
2.(b)	What is a system .explain LTI system in detail?	5	CO1	2	1.2.1
2.(c)	Obtain the Fourier Transform of the unit impulse signal	5	CO1	4	2.1.3
3.(a)	Derive the equation for power efficiency for AM wave. What is the maximum efficiency for tone modulation	5	CO2	4	2.1.3
3.(b)	Explain phase shift method of generation of SSB-SC signals.	5	CO2	2	1.2.1
3.(c)	A 400 Watt (400-W) carrier is modulated to a depth of 75 percentage , Calculate the total power in the modulated wave	5	CO2	4	1.4.1
OR					
4.(a)	Derive the expression for modulating index with various methods	5	CO2	4	2.1.3
4.(b)	Explain working of super heterodyne receiver with the help of block diagram.	5	CO2	2	1.2.1
4.(c)	A modulating signal $m(t)=10\cos(2\pi\times10^3t)$ is amplitude modulated with a carrier signal $c(t)=50\cos(2\pi\times10^5t)c(t)$. Find the modulation index, the carrier power, and the power required for transmitting AM wave.	5	CO2	4	1.4.1

Blooms Texanomy level outcome wise marks distribution

15   15

■ Level 2   ■ level 4

Course outcome wise marks distribution

■ CO1
■ CO2

BL – Bloom's (Revised) Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

Class: SE   Branch: E&TC   Semester: II

Subject : **Object Oriented Programming** (Code: 204194)

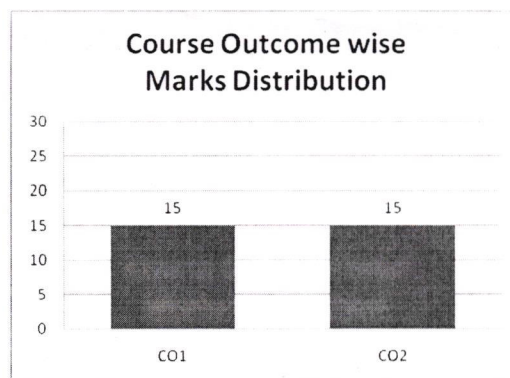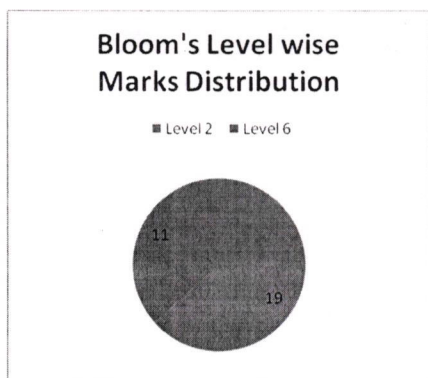Maximum Marks: 30   Duration: 60 Minutes   Date: 08.04.22

Special Instructions:
1) Attempt Questions Q.1 or Q.2, Q.3 or Q.4.
2) Neat diagrams must be drawn wherever necessary.

Q. No.	Question / Description	Marks	CO	BL	PI
1 a	Compare procedure oriented and object oriented programming languages.	5	1	2	1.3.1
1 b	Explain inline function with suitable example.	5	1	2	1.3.1
1 c	Write a C ++ programs to calculate the simple interest.	5	1	6	3.2.1
	OR				
2 a	Explain the following C++ terms with example : (i) Scope resolution operator (iii) endl operator	4	1	2	1.3.1
2 b	Explain call by value and call by reference concept with suitable code in C++.	6	1	2	2.1.2
2 c	Explain functions with default arguments in C++ with suitable example.	5	1	6	2.1.2
3 a	Explain class and object with suitable example.	5	2	2	1.3.1
3 b	What is a destructor? Explain the use of destructors with suitable examples.	4	2	2	1.3.1

3 c	Consider the following declarations:
	class train
	{
	    int train_no;
	    char destination[20];
	    float distance;
	    public:
	    void get_data(); //To read data from user
	    void show_data(); //To display the values of data members to the user
	};
	Complete the member function definition.
		6	2	6	3.2.1

	OR				

4 a	Explain following types of constructor with suitable codes: 1. Default constructor 2. Parameterized constructor	**6**	2	6	2.1.3
4 b	Write a short note on: 1. Static data members 2. Static member functions	**5**	2	2	1.3.1
4 c	How is memory allocated for class and objects in C++?	**4**	2	2	1.3.1

Bloom's Level wise Marks Distribution

■ Level 2   ■ Level 6

11

19

Course Outcome wise Marks Distribution

15   15

CO1   CO2

BL – Bloom's (Revised) Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)