Roll No.:.....

National Institute of Technology, Delhi

Mid Semester Examination (Autumn 2023)

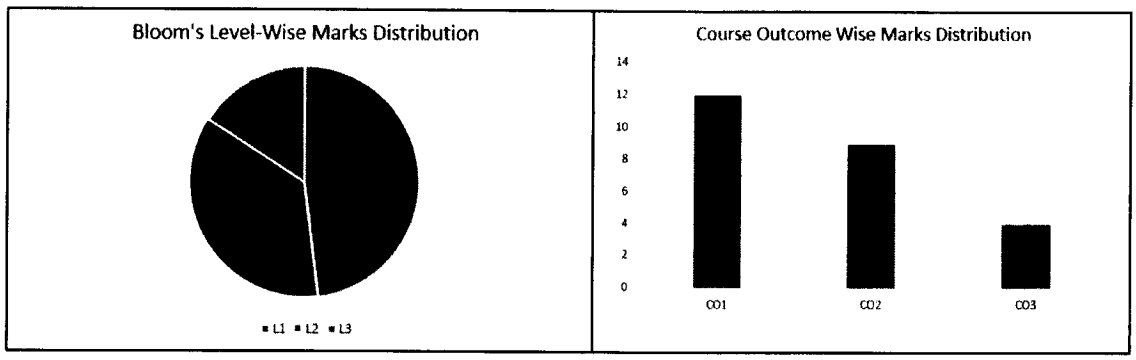
Branch	**: B. Tech**	**Semester**	**: 4th**
Title of the Course	**: Theory of Application Development**	**Course Code**	**: CSB 401**
Time	**: 1.5 Hours**	**Maximum Marks**	**: 25**

Ques No.		Marks	COs	B L	P O	PI Code
Q1.	**Attempt any FIVE of the following.** a) List features of Android Operating System. b) Define Android Virtual Devices (AVD). c) Write the directory path where images are stored while developing Android application. d) Write the syntax for Intent-Filter tag. e) Define services in Android operating system. f) Enlist the steps to publish the Android application	5*1=5	CO 1	L1	1	
Q2.	a) Describe the Android architecture in detail. b) Differentiate between JVM and DVM. c) Describe activity and its essential states. Explain the activity life cycle.	3+2+ 2	CO 1	L1	1	

Q3.	a) Write a XML code for simple calculator using table layout.
	b) Differentiate between Implicit and Explicit Intent.
	c) Is it work like a constructor? Justify you answer
	Class bird
	{
	public void bird ()
	{
	system.out. println ("I am a bird")
	}
		2+2+ 1	CO 2	L2	2	

Q4.	a) Discuss the functions and features of Java in brief. Explain the role of OOP's concepts in android application development. b) Write XML code for creating a Button on the screen labelled as "Click"	2+2	CO 2	L2	2	
Q5.	Observe the following GUI and write an XML file using relative layout to create the same.	4	CO 3	L3	2	

	[redacted]					



BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)
CO – Course Outcomes
PO – Program Outcomes;
PI Code – Performance Indicator Code

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National Institute of Technology, Delhi

Name of the Examination: B.Tech.			
Mid Semester Examination (Autumn, 2023)			
Branch	: CSE	Semester	: VII
Title of the Course	: Neural Network	Course Code	: CSL 465

Time: 1 Hour 30 Minutes | Maximum Marks: 25

Note: *All questions are compulsory.*

COURSE OUTCOMES

CO1 Understand the fundamentals, such as neural networks and their applications.

CO2 Analyze the concept of neural networks for learning linear and non-linear activation functions

CO3 Understand how to find minima of cost functions, learn about training methods and set the parameter values.

CO4 To learn how to apply Artificial Neural Networks to real-world problems.

Q. NO	QUESTION	Mark	CO	BL
1	While the concept of neural networks dates back to 1952, why has the practical implementation and significant progress in neural network research only begun recently?	3	2	2
2	Using McCulloch Pitts neuron, implement a fire alarm. The alarm is triggered on the following conditions. 1. Smoke is detected 2. Heat is detected 3. The manual pull station is activated. Also, shows whether the above implementation conditions are linearly separable or not.	6	4	6
3	Show whether a 2-input XOR function is a linearly separable function. Implement the XOR function using perceptrons.	6	2	3
4	Explain simple artificial Artificial Neuron structure.	3	1	1
5	Consider a simple quadratic function $f(x) = 2x^2 - 4x + 3$. Apply the gradient descent method to find the minimum value of this function. Start with an initial guess of (x = 2), a learning rate η of 0.1 and 0.05, and perform four	7	3	3

	iterations. Show your calculations for these two learning rates and infer the impact of the change in learning rate.			

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National Institute of Technology Delhi

Name of the Examination: B.Tech. (Oct. 2023)

Branch: CSE
Title of the Course: Game Theory
Time: 1.5 Hours
Note: Attempt all questions.

Semester: 7th
Course Code: CSL 477
Maximum Marks: 25

Q.No.	1	2	3	4
C.O.	CO1	CO2	CO3	CO4
P.O.	1	2	3	2
B.L.	2	2	1	3

1. (a) What is strategic game? What are its three key components? (3)

   (b) Find the Nash equilibrium of the following game, (3)

-1,3	2,1	2,0
0,2	3,4	1,0

2. (a) Define strictly dominated actions with example. (3)

   (b) What do the producers maximise in Cournot market? Find the best response of firm 1 whose cost function is q_1^2 and which faces inverse demand function, $P = 2 - q_1 - 2q_2$ (there are 2 firms in the market) (2)

3. (a) In the Bertrand equilibrium of two firms with equal unit cost what is the Nash equilibrium. (2)

   (b) What is the equilibrium in the Hotelling's electoral competition game ? (3)

4. (a) How many Nash equilibria are there in first price sealed bid auction ? Give some examples after explaining those. (3)

   (b) Show that BoS game has a mixed strategy Nash equilibrium at $p = 2/3$ and $q = 1/3$? (3)

   (c) What are the main four components of an extensive games with perfect information? (3)

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National Institute of Technology, Delhi

Name of the Examination: B. Tech 4th year (Mid Semester), 2023

Branch : CSE

Semester: 7th

Title of the Course: Data Communication and Network

Course Code: ECL 711

Time: 1 Hours 30 Minutes

Maximum Marks: 25

Note: Attempt all questions **(5×5=25)**

Q. No.	Question	Marks	CO	PO	BL	PI
1	What does the acronym OSI stand for? What are the layers of the OSI model? Explain in detail the responsibilities of the Transport Layer?	5	1		L1	
2	Compare and contrast a circuit switched network and packet switched network.	5	1		L1	
3	Define random access and list the disadvantages of Stop and Wait ARQ.	5	2		L3	
4	Explain in detail the following CSMA protocols. (a) 1- persistent (b) Non persistent (c) p- persistent	5	2		L3	
5	Compare and contrast the Go-Back -N ARQ protocol with Selective Repeat ARQ.	5	2		L3	