Shri Shankaracharya Institute of Professional Management & Technology Department of Information Technology SSIPMT A

Class Test - II Session- July - Dec 2022 Month - January 2023

Sem- IT 5th Subject-Artificial Intelligence and Machine Learning Code- C033511(033)

Max Marks: 40 Time Allowed: 2 hrs.

Note:- Question 1, 2 and 3 are compulsory. Solve any two from Question 4, 5 and 6. Each question carries equal

Q.N.	Questions		Levels of Bloom's taxonomy	COs	
1.	Derive top-down and bottom-up parse tree for the following sentence: "The small tree shades the new house by the stream"	[8]	Applying	CO3	
2.	Draw the ATN structure of the following setance and also show the representation in ATN: "The ball was kicked by the man."	[8]	Applying	CO3	
3.	Solve the block world problem given below using goal stack planning. Initial State Goal State C B A C D A D	[8]	Applying	CO3	
4.	What is Bayesian Decision Theory?	[8]	Understand	CO4	
5.	What is probably approximately correct learning?	[8]	Understand	CO4	
6.	What is regression? Also enlighten different types of regression.	[8]	Understand	CO4	

Shri Shankaracharya Institute of Professional Management & Technology Department of Information Technology

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Class Test – II Session - July – Dec 2022 Month – December Sem- 5th (B.Tech IT) Subject- Software Engineering & Project Management Code- C033514 (033)

Time Allowed: 2 hrs. Max Marks: 40

Note: -All questions are mandatory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Describe software Cost Estimation techniques.	[8]	Understanding	CO4
2.	Compare Verification and Validation in Software Engineering.	[8]	Understanding	CO3
3.	Summarize the given topics: 1. Component Level Design 2. Effective Modular Design	[8]	Understanding	CO3
4.	A project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the Effort, development time, average staff size, and productivity of the project.	[8]	Applying	CO4
5.	Illustrate the importance of Project Scheduling.	[8]	Understanding	CO4

Shri Shankaracharya Institute of Professional Management & Technology Department of Information Technology



Class Test – II Session - July – Dec 2022 Month – December

Sem- 5th (B.Tech IT) Subject- Software Engineering & Project Management

Code- C033514 (033)

Time Allowed: 2 hrs. Max Marks: 40

Note: -All questions are mandatory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Describe software Cost Estimation techniques.	[8]	Understanding	CO4
2.	Compare Verification and Validation in Software Engineering.	[8]	Understanding	CO3
3.	Summarize the given topics: 1. Component Level Design 2. Effective Modular Design	[8]	Understanding	CO3
4.	A project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the Effort, development time, average staff size, and productivity of the project.	[8]	Applying	CO4
5.	Illustrate the importance of Project Scheduling.	[8]	Understanding	CO4

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology
Class Test – II Session- Jul-Dec, 2022 Month-January
Sem- 5th Subject- Theory of computation
Time Allowed: 2 hrs Max Marks: 40

Note: - Attempt any 5 questions.

Q. N.	Questions	Marks	Levels of Bloom's taxonomy	COs
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Α.	Eleborate Chomsky hierarchy of grammar.	[8]	Understanding	CO3
В.	Elaborate Closure properties of regular languages.	[8]	Understanding	CO2
j.	Consider the grammar- S → bB / aA A → b / bS / aAA B → a / aS / bBB			
C.	For the string w = bbaababa, find- 1. Leftmost derivation	[8]	Applying	CO2
CANADA CA	Rightmost derivation			
D.	Elaborate Ambiguity in grammar with example.	[8]	Understanding	CO3
	Consider the given CFG G1 and convert it to CNF.		ζ.	95000-007-00-700-00-10-10-10-10-10-10-10-10-10-10-10-1
E.	S → ASB A → aAS a ε B → SbS A bb	[8]	Applying	CO3
F.	Elaborate how push down automata accepts language .	[8]	Applying	CO4
G	Check whether language of the following grammar is finite or not- S → AB / a A → BC / b B → CC / c	[8]	Applying	CO3

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Class Test – II Session-July – Dec 2022 Month – Jan 2023

Sem-5th Sem Subject- Design and Analysis of Algorithm Code-C033531(033)

Time Allowed: 2 hrs. Max Marks: 40

Note: -Questions I is mandatory and Attempt any 2 from Question 2, 3, &4.

S.N.	Questions	Marks	Levels of Bloom's taxonomy	cOs
	Unit-III			
-	Describe Huffman algorithm using suitable example	[4]	Applying	CO3
	Find longest common subsequence for the following two sequence:			(
5	X.ABCBDAB	8	Applying	3
	V.BDCABA			
	Consider the problem with their respective weight and value as			may consider the second of the
ښ ښ	$I = \langle 11, 12, 13 \rangle$ W = $\langle 5, 4, 3 \rangle$ and V = $\langle 6, 5, 4 \rangle$	[8]	Applying	CO3
21	The knapsack has the maximum capacity W = 7. Find out maximum		•	
	Find the minimum spanning tree			page was the

Shri Shankaracharya Institute of Professional	Management & Technology, Raipur	Department of Information Technology	Class Test - II Session- July - Dec 2022 Month - Jan 2023	10000
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Sem-5th Sem Subject- Design and Analysis of Algorithm Code-C033531(033) Time Allowed: 2 hrs. Max Marks: 40

Note: -Questions I is mandatory and Attempt any 2 from Question 2, 3&4.

Note: -	Note: - Cuestions I is manualory and Altemple any 2)	June Zun			
Q.N.	Questions	Marks	Levels of Bloom's taxonomy	soo	
A contract of the contract of	Unit-1				
-	Describe Huffman algorithm using suitable example	[4]	Applying	CO3	
2.	Find longest common subsequence for the following two sequence: X: A B C B D A B	[8]	Applying	CO3	
	Y: BDCABA Consider the problem with their respective weight and value as				
3.	$I = \langle II, I2, I3 \rangle$ W = $\langle 5, 4, 3 \rangle$ and $V = \langle 6, 5, 4 \rangle$	[8]	Applying	603	
Makes a phone of the contract	The knapsack has the maximum capacity W = 7. Find out maximum possible value.	ž			
	Find the minimum spanning tree using Prim's algorithm			and the state of the principles of subset the state of the state of	
4	0 11 8 14 0	[8]	Applying	CO3	
a kana ana ang ang ang ang ang ang ang ang	8 2 2 9				

C03

Applying

[8]

using Prim's algorithm

1	A contract of the contract of			
4.	·ω	2	:-	
Express the Travelling Salesman problem using suitable example.	Find the topological sort of the following graph.	algorithm and print the sequence of extracted node for the given graph.	Describe Breadth First Search using suitable example.	Questions
[8]	[8]	8	[4]	Marks
Applying	Applying	Applying	Applying	Levels of Bloom's taxonomy
CO4	CO4	CO4	CO4	COs
er.				

- Best of Luck -

4.	ω		2		-		Q.N.
Express the Travelling Salesman problem using suitable example.	0 0	Find the topological sort of the following graph.		Generalized the concept of Dijkastra algorithm and print the sequence of extracted node for the given graph.	Describe Breadth First Search using suitable example.	Unit-IV	Questions
[8]	8	The state of the s	<u>.</u>		Æ		Marks
Applying	Applying		Applying		Applying		Levels of Bloom's taxonomy
C04	CO ₄		CO4		CO4		COs

---- Best of Luck ----

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Shri Shankaracharya Institute of Professional Management & Technology Department of Information Technology

Class Test – II Session- July – Dec, 2022 Month- January

Sem- IT 5th Subject- Principles of Communication Systems- C033513(033)

Time Allowed: 2 hrs Max Marks: 40

Note: - Attempt any 5questions

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1	How SSB is transmitted and received? Explain with the help of block diagram. Also list its advantages and disadvantages.	8	Understanding	CO1
2	A modulating signal $10\sin(2\pi \times 10^3 t)$ is used to modulate carrier signal $20\sin(27\pi \times 10^4)t$. Find. (i) Modulation index (ii) Percentage modulation (iii) Frequencies of sideband components and their amplitudes. (iv) Band width of modulated signal.	8	Understanding	CO1
3	Compare DSB FC, DSB SC, SSB and VSB on the basis of following parameters i) Bandwidth ii) Applications iii) Carrier suppression iv) Frequency Spectrum v) Power saving vi) Sideband Supression vii) Transmission Efficiency	8	Apply	COI
4	With the aid of block diagram obtain FM with the help of PM and PM with the help of FM. Write the difference between PM and FM.	8	Understanding	CO2
5.	Explain the Indirect method of generation of FM with the help of a block diagram. Give an example to illustrate the generation FM using Armstrong method	8	Understanding	CO2
6.	(i)A 107.6 MHz carrier signal is frequency modulated by a 7kHz sine wave. The resultant FM signal has a frequency deviation of 50 kHz. Determine the modulation index, carrier swing, Highest and Lowest Frequency of the FM wave. (ii) Write Standard Equation of i) DSB-FC ii) DSB-SC iii) SSB-SC iv) FM v) PM	8	Apply	CO2