Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – II Session: Jul – Dec, 2021

Sem- 5th **Subject- Design and Analysis of Algorithm**

Time Allowed: 2 hrs Max Marks: 40

Note: - Attempt any 5 Question. All Carry 8 Marks.

Q. N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Write an algorithm to find all-pair shortest path and derive its complexity.	[8]	Remember	CO4
2.	Explain breadth first algorithm with example.	[8]	Understand	CO4
3.	Explaining Travelling salesman problem with example.	[8]	Remember	CO3
4.	Give the Kruskal Algorithm for finding minimum spanning tree with any example.	[8]	Understand	CO3
5.	What do you mean by Topological sorting, explain with example.	[8]	Remember	CO4
6.	Define Knapsack problem with example.	[8]	Remember	CO3
7.	Illustrate Matrix multiplication with example.	[8]	Analyze	CO3

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – II Session- July – Dec 2021 Month - December

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

Time Allowed: 2 hrs. Max Marks: 40

*Note: -**Solve any five Questions. Each question carries equal marks.***

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Derive top-down and bottom-up parse tree for the following sentence: "The small stone can stop the cart by the end of the road"	[8]	Applying	CO3
2.	Differentiate between RTN and ATN with suitable example.	[8]	Applying	CO3
3.	Elucidate Goal stack planning.	[8]	Understand	CO3
4.	Differentiate between Parametric and Non-Parametric Methods	[8]	Understand	CO4
5.	Elucidate Bayesian decision theory with suitable example.	[8]	Understand	CO4
6.	Differentiate Supervised & Unsupervised learning with an example.	[8]	Understand	CO4

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – II Session- July – Dec 2021 Month - December

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

Time Allowed: 2 hrs. Max Marks: 40

*Note: -**Solve any five Questions. Each question carries equal marks.***

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Derive top-down and bottom-up parse tree for the following sentence: "The small stone can stop the cart by the end of the road"	[8]	Applying	CO3
2.	Differentiate between RTN and ATN with suitable example.	[8]	Applying	CO3
3.	Elucidate Goal stack planning.	[8]	Understand	CO3
4.	Differentiate between Parametric and Non-Parametric Methods.	[8]	Understand	CO4
5.	Elucidate Bayesian decision theory with suitable example.	[8]	Understand	CO4
6.	Differentiate Supervised & Unsupervised learning with an example.	[8]	Understand	CO4

Shri Shankaracharya Institute of Professional Management & Technology
Department of Information Technology
Class Test – II Session- July – Dec, 2021 Month- December
Sem- IT 5th Subject- Principles of Communication System- C033513(033)
Time Allowed: 2 hrs Max Marks: 40

Note: - ***Attempt Both the question.Each Question has 4 parts. Part a is compulsory. Attempt any 2 out of b,c and d.***

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1				
a.	Find the Nyquist rate and Nyquist interval for the following signals i) $m(t)=\sin(500\pi t)$ ii) $m(t)=12\pi\cos(4000\pi t)\cos(1000\pi t)$	4	Apply	CO3
b.	State and Prove Sampling Theorum	8	Understanding	CO3
c.	Explain Pulse Code Modulation in details with the help of a block diagram	8	Apply	CO3
d.	Differentiate among PAM, PWM and PPM	8	Understanding	CO3
2				
a.	Draw the waveform of ASK , PSK and FSK. For data 101101	4	Understanding	CO4
b.	Explain the generation and detection of QPSK along with block diagram and waveform.	8	Understanding	CO4
c.	Compare ASK, FSK and PSK Technique	8	Understanding	CO4
d.	Explain in detail with an example DPSK Transmitter and Receiver.	8	Understanding	CO4

ShriShankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – II Session- July-Dec, 2021 Month-December

Semester- IT 5th**Subject-** Software Engineering & Project Management**Code-**C033514(033)

Time Allowed: 2 hrs Max Marks: 40

Note: All questions are cumpolsury.

Q.N.	Questions	Marks	Levels of Bloom's Taxonomy	COs
1.	What are the two Risk strategies? Explain them.	[4]	Understand	CO1
2.	Name different types of maintenance and define them.	[4]	Understand	CO1
3.	What is COCOMO? Explainsthree basic classes of software development projects.	[8]	Understand	CO1
4.	Assume that the size of an organic type software product has been estimated to be 32,000 lines of source code. Assume that the average salary of a software developer is Rs. 15,000 per month. Determine the effort required to develop the software product, the nominal development time, and the cost to develop the product.	[8]	Apply	CO2
5.	Differentiate forward engineering and reverse engineering	[8]	Apply	CO2
6.	Whatis Integration testing ?Explain different approaches that can be used to develop the test plans of integration testing.	[8]	Understand	CO2

ShriShankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – II Session- July-Dec, 2021 Month-December

Semester- IT 5th**Subject-** Software Engineering & Project Management**Code-**C033514(033)

Time Allowed: 2 hrs Max Marks: 40

Note: All questions are cumpolsury.

Q.N.	Questions	Marks	Levels of Bloom's Taxonomy	COs
1.	What are the two Risk strategies? Explain them.	[4]	Understand	CO1
2.	Name different types of maintenance and define them.	[4]	Understand	CO1
3.	What is COCOMO? Explain three basic classes of software development projects.	[8]	Understand	CO1
4.	Assume that the size of an organic type software product has been estimated to be 32,000 lines of source code. Assume that the average salary of a software developer is Rs. 15,000 per month. Determine the effort required to develop the software product, the nominal development time, and the cost to develop the product.	[8]	Apply	CO2
5.	Differentiate forward engineering and reverse engineering	[8]	Apply	CO2
6.	Whatis Integration testing ?Explain different approaches that can be used to develop the test plans of integration testing.	[8]	Understand	CO2

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – II Session- July-Dec, 2021 Month - Dec

B.Tech –IT, Sem - 5th Subject- Theory of Computation Code- C033512(033))

Time Allowed: 2 hrs Max Marks: 40

Note: - All Questions are compulsory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
	Section A			
1.	Convert the following context-free grammar G **S-> aXbX, X-> aY | bY | ε** **Y-> X | c** Into **CNF and GNF.**	[7]	Apply	CO3
2.	Construct the grammar that generates all strings of a's& b's where the length of the string is **1. At most 3** **2. At Least 3** **3. 0 (Mod 3)**	[5]	Apply	CO3
3.	Construct a PDA which is equivalent to following CFG **S->aBB, B-> aS | bS | a** Whether PDA accepts the string **abaaaa** or not.	[4]	Apply	CO4
4.	Describe Pumping lemma and weak form pumping lemma for Regular Set with example.	[4]	Understand	CO2
	Section B			
5.	Design a PDA for the language **$L=\{a^n b^m c^n \mid m, n >=1\}$** and evaluate the PDA with example.	[6]	Apply	CO4
6.	Design aTM for the language **$L = \{ ww^R \mid w \in (0+1)^*$ and w^R is reverse of w}.** Analyze the TM perfectly working or not. Justify?	[7]	Apply	CO5
7.	Design aTM for the language **$L = \{ a^n b^n c^n \mid n >=1\}$** and explain with an example.	[7]	Apply	CO5

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – II Session- July-Dec, 2021 Month - Dec

B.Tech –IT, Sem - 5th Subject- Theory of Computation Code- C033512(033))

Time Allowed: 2 hrs Max Marks: 40

Note: - All Questions are compulsory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
	Section A			
1.	Convert the following context-free grammar G **S-> aXbX, X-> aY | bY | ε** **Y-> X | c** Into **CNF and GNF.**	[7]	Apply	CO3
2.	Construct the grammar that generates all strings of a's& b's where the length of the string is **4. At most 3** **5. At Least 3** **6. 0 (Mod 3)**	[5]	Apply	CO3
3.	Construct a PDA which is equivalent to following CFG **S->aBB, B-> aS | bS | a** Whether PDA accepts the string **abaaaa** or not.	[4]	Apply	CO4
4.	Describe Pumping lemma and weak form pumping lemma for Regular Set with example.	[4]	Understand	CO2
	Section B			
5.	Design a PDA for the language **$L=\{a^n b^m c^n \mid m, n >=1\}$** and evaluate the PDA with example.	[6]	Apply	CO4
6.	Design aTM for the language **$L = \{ ww^R \mid w \in (0+1)^*$ and w^R is reverse of w}.** Analyze the TM perfectly working or not. Justify?	[7]	Apply	CO5
7.	Design aTM for the language **$L = \{ a^n b^n c^n \mid n >=1\}$** and explain with an example.	[7]	Apply	CO5