Shri Shankaracharya Institute of Professional Management & Technology

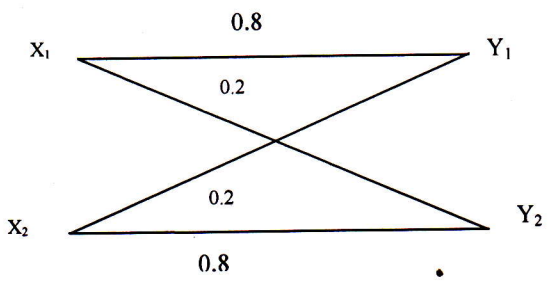
Department of Information Technology

Class Test – I Session- Jan.– June 2022 Month- April

Sem- IT 6th Subject- Information Theory and Coding C033613(33)

Time Allowed: 2 hrs Max Marks: 40

Note: - ***Attempt any 5 question. All questions carry equal marks.***

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Construct a Huffman coding tree for the following message and also its calculate code efficiency. Message: M1 M2 M3 M4 M5 M6 M7 M8 M9 M10 Probability: 0.2 0.18 0.12 0.1 0.1 0.08 0.06 0.06 0.06 0.4	[8]	Apply	CO1
2.	Apply the Shannon-fano coding procedure for the following message ensemble and determine the average length and efficiency of the code system Message: M1 M2 M3 M4 M5 Probability: 0.3 0.1 0.4 0.08 0.12	[8]	Apply	CO1
3.	The channel matrix is given by $P(X,Y) = \begin{bmatrix} 2/3 & 1/3 \\ 1/10 & 9/10 \end{bmatrix}$ Determine H(X), H(X/Y), H(Y/X) and mutual information I(X;Y).	[8]	Apply	CO2
4.	Find the mutual information and channel capacity of the channel shown in figure below Given : $p(x_1)=0.6$, $p(x_2)=0.4$.Calcuate H(X), H(Y), H(Y/X) and I(X;Y) 	[8]	Apply	CO2
5.	A channel has a BW of 5KHz and a signal to noise power is 63. Determine the BW needed if the S/N power ratio is reduced to 31. What will be the signal power required if the channel bandwidth is reduced to 3KHz?	[8]	Apply	CO3
6.	State and Prove Shannon Hartley theorem.	[8]	Remember	CO3

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – I Session-Jan-June, 2022 Month- April

Semester- IT 6th **Subject-** : Data mining **Code-**: C033635(033)

Time Allowed: 2 hrs Max Marks: 40

Note: -Answer any 5 questions.

Q.N.	Questions	Marks	Levels of Bloom's Taxonomy	COs
1.	Differentiate OLTP and OLAP	[8]	Understand	CO1
2.	Define Data mining. Explain KDD Process.	[8]	Understand	CO1
3.	Explain the three tier data warehouse architecture.	[8]	Understand	CO1
4.	Define any 4 : 1- Itemset 2-Frequent Itemset 3- Closed Itemset 4- Support 5- Confidence	[8]	Understand	CO2
5.	Apply Apriori algorithm and generate association rules with min support is 50% and threshold confidence is 70%. TID | ITEMS 100 | 1,3,4 200 | 2,3,5 300 | 1,2,3,5 400 | 2,5	[8]	Apply	CO2

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test –I Session- Jan-June, 2022 Month- April

Sem- IT 6th Subject- Management Information System Code- C000648(033)

Time Allowed: 2 hrs Max Marks: 40

Note: Question 1 to 5 is compulsory, Carry 2 marks each.

Attempt any 5 from question 6 to 11. All carry 6 marks.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
	Unit I			
1	What are the three words MIS comprices of?	[2]	Understanding	CO1
2.	How will you define 'MIS'?	[2]	Understanding	CO2
3.	Is the objective of MIS is only about capturing of data?	[2]	Understanding	CO1
4.	Is DSS and MIS related to each other?	[2]	Understanding	CO3
5.	Name the organization where MIS mustv use.	[2]	Applying	CO2
6.	What are the different levels of MIS?	[6]	Understanding	CO4
7.	What are the different challenges in development of MIS?	[6]	Applying	CO1
8.	What is the nature and scope of MIS?	[6]	Understanding	CO3
9.	What are the advantages of MIS in competitive environment?	[6]	Understanding	CO1
10	What are the characteristics of computerized MIS?	[6]	Applying	CO1
11	What do you mean by executive information system?	[6]	Understanding	CO1

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – I Session- Jan – Jun 2022 Month- April

Sem- IT 6th, Subject- Computer Graphics and Data Visualization, Code- C033611(033)

Time Allowed: 2 hrs Max Marks: 40

Note: - Solve any five questions. All question carries equal marks.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
	Unit I			
1.	Differentiate between raster scan and random scan.	[8]	Understanding	CO1
2.	Rasterize a line using: a. Bresenham's line drawing algorithm for the starting coordinates (9, 18) and ending coordinates (14, 22). b. Rasterize a line using DDA and Bresenham's line drawing algorithm for the starting coordinates (5, 6) and ending coordinates (13, 10).	[4] [4]	Applying	CO1
3.	Elaborate Mid-point circle drawing algorithm with suitable example.	[8]	Applying	CO1
4.	Enlighten Mid-point ellipse drawing algorithm.	[8]	Understanding	CO1
5.	What are the various methods of area filling on raster systems? Illustrate all of them with example.	[8]	Applying	CO1
6.	Enlighten basic geometric transformations.	[8]	Understanding	CO2

Shri Shankaracharya Institute of Professional Management & Technology

Department of Computer Science & Engineering

Class Test – I **Session**- Jan – June 2022 **Month** - April

Sem- IT 6th | Subject- Compiler Design | Code- C033612(033)

Time Allowed: **2 hours** | Max Marks: 40

Note: - All Questions are compulsory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
	Section - I			
1.	Explain the various phases of a compiler with the help of a block diagram. Use these phrases to translate **T = Count * c + 10.5** into the target code in assembly language.	[5]	U	CO1
2.	Draw the transition diagram to recognize the tokens below: **1) White Space 2) Unsigned Number 3) Relational Operator**	[5]	Apply	CO1
3.	Design Finite automata to check whether the given decimal number is **divisible by 3.**	[5]	Apply	CO1
4.	Consider the grammar **S-> (L) | a; L -> L, S | S** Construct an LMD and RMD for the following sentences: a) **(a,(a, a))** b) **(a, ((a, a), (a, a)))**	[5]	Apply	CO2
	Section - II			
5.	Consider the following grammar and eliminate left recursion- **a) A → Ba / Aa / c** **b) B → Bb / Ab / d**	[6]	Apply	CO2
6.	Describe Ambiguity? Is the following grammar ambiguous? If yes then remove the ambiguity and rewrite the grammar: **a) E-> I / E+E / E*E / (E);** **b) I-> a / b / I a / I b / I 0 / I 1**	[5]	Apply	CO2
7.	Use Left factoring and /or elimination of Left Recursion to convert the following grammar into LL grammar? **a) E-> E+ T | T ; T-> int | (E)** **b) L-> int | int , L |(L)**	[5]	Apply	CO2
8.	Find **FIRST** functions for the following grammar by Removing Left Recursion if exists. **a) E-> E * T | T; T-> T ^ F | F; F-> (E) | id** **b) S-> ACB | Cbb | Ba ; A-> da | BC ; B-> g | ε; C-> h | ε.**	[4]	Apply	CO2

Shri Shankaracharya Institute of Professional Management & Technology

Department of Computer Science & Engineering

Class Test – I **Session**- Jan – June 2022 **Month** - April

Sem- IT 6th | Subject- Compiler Design | Code- C033612(033)

Time Allowed: **2 hours** | Max Marks: 40

Note: - All Questions are compulsory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
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	Section - II			
5.	Consider the following grammar and eliminate left recursion- **a) A → Ba / Aa / c** **b) B → Bb / Ab / d**	[6]	Apply	CO2
6.	Describe Ambiguity? Is the following grammar ambiguous? If yes then remove the ambiguity and rewrite the grammar: **a) E-> I / E+E / E*E / (E);** **b) I-> a / b / I a / I b / I 0 / I 1**	[5]	Apply	CO2
7.	Use Left factoring and /or elimination of Left Recursion to convert the following grammar into LL grammar? **a) E-> E+ T | T ; T-> int | (E)** **b) L-> int | int , L |(L)**	[5]	Apply	CO2
8.	Find **FIRST** functions for the following grammar by Removing Left Recursion if exists. **a) E-> E * T | T; T-> T ^ F | F; F-> (E) | id** **b) S-> ACB | Cbb | Ba ; A-> da | BC ; B-> g | ε; C-> h | ε.**	[4]	Apply	CO2