



Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – I Session- Jan – June, 2023 Month-April

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

Time Allowed: 2 hrs | Max Marks: 40

Note: - All Questions are compulsory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
Section - I				
1.	Construct Finite automata to check whether given decimal number is divisible by 3.	[5]	Apply	CO1
2.	Draw / Construct the transition diagram to recognize the tokens below: 1) White Space 2) Unsigned Number 3) Relational Operator.	[5]	Apply	CO1
3.	Explain the various phases of compiler with the help of block diagram. Use these phases to translate Total = Count * C+ 20.5 into the target code in assembly language.	[5]	Understand	CO1
4.	Consider the grammar $S \rightarrow (L) a; L \rightarrow L * S S$ Construct a 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- 1) $E \rightarrow E + E / E * E / a$ 2) $S \rightarrow Aa / b; A \rightarrow Ac / Sd$	[5]	Apply	CO2
6.	Describe Ambiguity? Is the following grammar ambiguous? If yes the remove the ambiguity and rewrite the grammar: a) $E \rightarrow I / E+E / E * E / (E);$ b) $I \rightarrow a / b / I a / I b / I 0 / I 1$	[5]	Apply	CO2
7.	Use Left factoring and /or elimination of Left Recursion to convert the following grammar into LL(1) grammar ? 1) $E \rightarrow E + T T; T \rightarrow \text{int} (E)$ 2) $L \rightarrow \text{int} \text{int}, L (L)$	[4]	Apply	CO2
8.	Apply FIRST and FOLLOW function to the following grammars by Removing Left Recursion (if exists). 1) $E \rightarrow E * T T; T \rightarrow T \wedge F F; F \rightarrow (E) \text{id}$ 2) $S \rightarrow aBd, B \rightarrow cC, C \rightarrow bC/\epsilon, D \rightarrow \epsilon F, E \rightarrow g/\epsilon, F \rightarrow f/\epsilon$	[6]	Apply	CO2

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Department of Information Technology

Class Test – I Session- Jan – June 2023 Month –April

Sem- B. Tech. 6th Subject-Management Information System Code- C000646(033)

Time Allowed: 2 hrs. Max Marks: 40

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

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	Cos
1.	Explain MIS with its role. Also discuss about its advantages and disadvantages.	[8]	Understand	CO1
2.	Discuss the Structure of Management Information System in detail.	[8]	Remember	CO1
3.	Describe Executive Information System decision making system with its advantages and disadvantages.	[8]	Remember	CO1
4.	Define Information. Explain with its classification in detail.	[8]	Remember	CO2
5.	Illustrate about the concepts of different decision making tools	[8]	Analyze	CO2
6.	Explain about the methods of collection of Information.	[8]	Understand	CO2

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

Sem- B. Tech. 6th Subject-Management Information System Code- C000646(033)

Time Allowed: 2 hrs. Max Marks: 40

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

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	Cos
1.	Explain Management Information System with its role. Also discuss about its advantages and disadvantages.	[8]	Understand	CO1
2.	Discuss the Structure of Management Information System in detail.	[8]	Remember	CO1
3.	Describe Executive Information System decision making system with its advantages and disadvantages.	[8]	Remember	CO1
4.	Define Information. Explain with its classification in detail.	[8]	Remember	CO2
5.	Illustrate about the concepts of different decision making tools	[8]	Analyze	CO2
6.	Explain about the methods of collection of Information.	[8]	Understand	CO2

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Department of Information Technology

Class Test – I Session- Jan – June 2023 Month – April

Sem- 6th (B.Tech IT) Subject-Computer Graphics

Code-C033611(033)

Time Allowed: 2 hrs. Max Marks: 40

Note: -All questions are mandatory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Discuss Random Scanning System and Raster Scanning System in Computer Graphics.	[8]	Understand	CO1
2.	Given the center point coordinates (0, 0) and radius as 10, generate all the points to form a circle using Midpoint Circle Generating Algorithm.	[8]	Apply	CO1
3.	Describe the concept of Transformation in Computer Graphics	[8]	Understand	CO2
4.	Find a Translation of Triangle A (1, 0), B (0, 1), C (1, 1) by Rotating 45° about the origin in anti-clock wire direction.	[8]	Apply	CO2
5.	If the center point coordinates (100, 100) and radius as 4 and 6 generate all the points to form an Ellipse, using Midpoint Ellipse Generating Algorithm.	[8]	Apply	CO2

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – I Session - Jan – June 2023 Month – April

Sem- 6th (B.Tech IT) Subject-Computer Graphics

Code-C033611(033)

Time Allowed: 2 hrs. Max Marks: 40

Note: -All questions are mandatory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Discuss Random Scanning System and Raster Scanning System in Computer Graphics.	[8]	Understand	CO1
2.	Given the center point coordinates (0, 0) and radius as 10, generate all the points to form a circle using Midpoint Circle Generating Algorithm.	[8]	Apply	CO1
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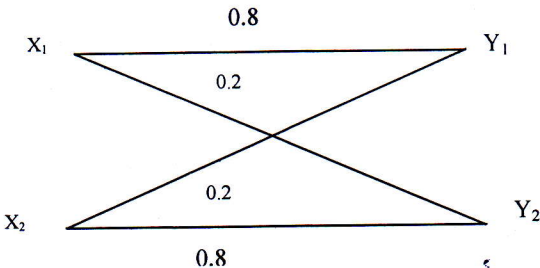
Shri Shankaracharya Institute of Professional Management & Technology
Department of Information Technology

Class Test – I Session- Jan.– June 2023 Month- April

Sem- IT 6th Subject- Information Theory and Coding C033613(033)

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	Consider a telegraph source having two symbols dot (.) and dash (-). The dot duration is 0.2 second and dash duration is three times of dot duration. The probability of occurrence of dots is twice that of dash and the time between symbols is 0.2 second. Calculate the information rate of telegraph source	[8]	Apply	CO1																						
2.	Construct a Huffman coding tree for the following message and also its calculate code efficiency. <table border="1" style="margin-left: 20px;"> <tr> <td>Message</td> <td>M1</td> <td>M2</td> <td>M3</td> <td>M4</td> <td>M5</td> <td>M6</td> <td>M7</td> <td>M8</td> <td>M9</td> <td>M10</td> </tr> <tr> <td>Probability</td> <td>0.2</td> <td>0.18</td> <td>0.12</td> <td>0.1</td> <td>0.1</td> <td>0.08</td> <td>0.06</td> <td>0.06</td> <td>0.06</td> <td>0.4</td> </tr> </table>	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
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																
3.	Apply the Shannon-fano coding procedure for the following message ensemble and determine the average length and efficiency of the code system <table border="1" style="margin-left: 20px;"> <tr> <td>Message</td> <td>M1</td> <td>M2</td> <td>M3</td> <td>M4</td> <td>M5</td> </tr> <tr> <td>Probability</td> <td>0.3</td> <td>0.1</td> <td>0.4</td> <td>0.08</td> <td>0.12</td> </tr> </table>	Message	M1	M2	M3	M4	M5	Probability	0.3	0.1	0.4	0.08	0.12	[8]	Apply	CO1										
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4.	. The channel matrix is given by $P(X, Y) = \begin{pmatrix} 2/3 & 1/3 \\ 1/10 & 9/10 \end{pmatrix}$ <p>Determine $H(X)$, $H(X/Y)$, $H(Y/X)$ and mutual information $I(X;Y)$.</p>	[8]	Apply	CO2																						
5.	Find the mutual information and channel capacity of the channel shown in figure below Given : $p(x_1)=0.6$, $p(x_2)=0.4$. Calculate $H(X)$, $H(Y)$, $H(Y/X)$ and $I(X;Y)$ 	[8]	Apply	CO2																						
6.	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	CO2																						

Department of Information Technology

Class Test – I Session- Jan-june, 2023 Month-April

Sem- IT 6th Subject- Data Mining

Time Allowed: 2 hrs Max Marks: 40

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Note: - solve any five questions

Q. N.	Questions	Marks	Levels of Bloom's taxonomy	COs																				
A.	<p>Consider the following dataset and find frequent item sets and generate association rules for them using Apriori algorithm.</p> <table border="1"> <thead> <tr> <th>TID</th> <th>items</th> </tr> </thead> <tbody> <tr> <td>T1</td> <td>11, 12, 15</td> </tr> <tr> <td>T2</td> <td>12,14</td> </tr> <tr> <td>T3</td> <td>12,13</td> </tr> <tr> <td>T4</td> <td>11,12,14</td> </tr> <tr> <td>T5</td> <td>11,13</td> </tr> <tr> <td>T6</td> <td>12,13</td> </tr> <tr> <td>T7</td> <td>11,13</td> </tr> <tr> <td>T8</td> <td>11,12,13,15</td> </tr> <tr> <td>T9</td> <td>11,12,13</td> </tr> </tbody> </table> <p>Given: minimum support count is 2 minimum confidence is 60%</p>	TID	items	T1	11, 12, 15	T2	12,14	T3	12,13	T4	11,12,14	T5	11,13	T6	12,13	T7	11,13	T8	11,12,13,15	T9	11,12,13	[8]	Apply	CO2
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B.	Describe data warehouse and explain its 3 tier architecture.	[8]	Understand	CO1																				
C.	Enlighten data preprocessing steps in data mining.	[8]	Understand	CO1																				
D.	Describe the Major issues in Data mining?	[8]	Understand	CO1																				
E.	a) What are the drawbacks of Apriori Algorithm? b) Write the FP Growth Algorithm.	[8]	Understand	CO2																				
F.	Explain about data mining as a step in the process of knowledge discovery.	[8]	Understand	CO1																				