

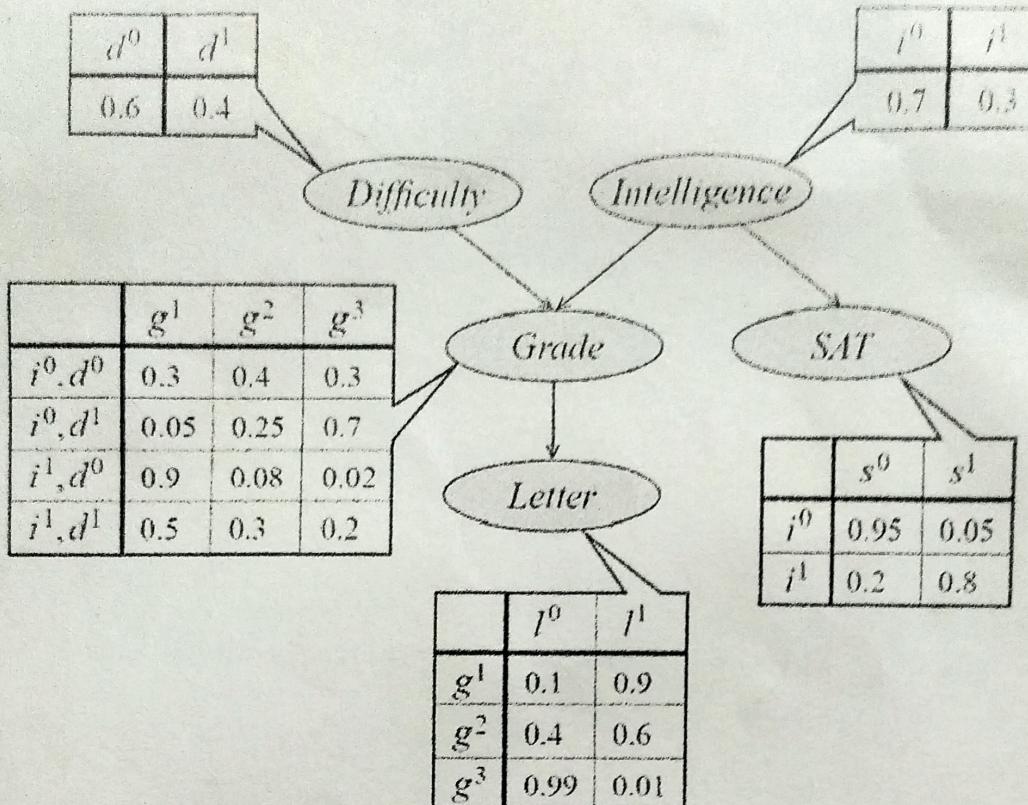
ACAD-R-42	SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR-440013	Rev: 01
Department <b>COMPUTER SCIENCE &amp; ENGINEERING</b>	VI SEMESTER B.E. (Sec B) <b>[COMPUTER SCIENCE &amp; ENGINEERING]</b> <b>SUBJECT: Artificial Intelligence (CST356)</b> <b>TEST-II</b>	Page: 01/01
		Date: <b>11/04/2022</b>
<b>MAX MARKS: 15</b>	<b>Duration: 1 hour</b>	

Note: Attempt any three questions. Each question carries equal marks.

Question	Description of Question	Marks	CO
1.	<p>Apply hill climbing algorithm on initial state I to reach Goal state G, by using Manhattan distance heuristic. Mention the drawback if this search do not find goal state.</p> <p>I=    <table border="1" style="display: inline-table; vertical-align: middle;">  2   8   3     1       4     7   6   5  </table>    G=    <table border="1" style="display: inline-table; vertical-align: middle;">  1   2   3     8       4     7   6   5  </table></p>	5	CO1
2.	<p>Consider the following set of facts:</p> <ul style="list-style-type: none"> <li>1. Everyone who loves all animals is loved by someone</li> <li>2. Anyone who kills an animal is loved by no one</li> <li>3. Jack loves all animals</li> <li>4. Either Jack or curiosity killed the cat, who is named Tuna</li> </ul> <p>Solve the following.</p> <ul style="list-style-type: none"> <li>1. Represent these facts using predicate logic</li> <li>2. Convert into prenex normal form then into skolem normal form</li> <li>3. Convert all these facts into clause form</li> </ul> <p>Answer the question "Did Curiosity kill the cat?"</p>	5	CO3

3.

5



What is the probability that a student will get a good recommendation letter ( $l^1$ ), if difficulty level of paper is high ( $d^1$ )?

4.

Apply perceptron learning algorithm on NAND classification of 3 inputs up to 4 iterations, with initial weight  $W_0 = [-0.5, 0.3, -0.2, 0.1]^T$  and learning rate,  $c=0.5$ .

5

X1	X2	X3	Y
-1	-1	-1	1
-1	-1	1	-1
-1	1	-1	-1
-1	1	1	-1

ACAD-27 a)	Shri Ramdeobaba College of Engineering and Management, Nagpur -440013	Iss. No.: 01, Rev. No.: 00 Date of Rev: 01/01/2018
Ref. Clause(s): 9.1		Page: 01/02
Department: Computer Science & Engineering	Semester : VI Sem Course Code: CST357 Course Name: Software Engineering	Shift: I and II
Programme: B.E.	Test: 2	Date of Exam: 12/04/2022 (4:00-5:00pm)
Max Marks: 15	Session: 2021-2022	Time: 1 Hour

Instructions: 1. Due credits will be given to neatness and adequate solving.  
 2. Diagrams, neat sketches and examples should be given wherever necessary.

Q.1	(a) What is Business Case? Explain the role of Business Case in Software Project Development.	3M	CO4	L2
	<b>OR</b>			L3
(b)	Describe Cosmic Function Point Technique for Software Effort Estimation using Generic Model of any software given below with suitable example.	3M	CO4	L4
				L5
Q.2	Compute the function point, productivity and cost per function for the following data:  1. Number of user inputs = 28 2. Number of user outputs = 50 3. Number of enquiries = 42 4. Number of logical files = 7 5. Number of external interfaces = 3 6. Effort = 36.9 p-m 7. Cost = \$ 7744/ month  Various processing complexity factors are: 4, 1, 0, 3, 3, 5, 4, 4, 3, 3, 2, 2, 4, 5. All the given data has average complexity value.	4M	CO3 , CO4	L4 L6

Q.3	(a)	What is defect removal efficiency and how it is calculated? Justify the following statement in detail: "Defect Removal Efficiency is the measure of quality assurance and control activities".	2M	CO3	L1 L5 L6
	(b)	Alpha soft is a software house which has completed a project of a retail software system for one of its client. During the development of this software, 40 errors were found before delivery of this software. After completion, this retail software was delivered to the client. But within only 6 months of operations after delivery, the client reported 10 errors. You are required to find the Defect Removal Efficiency for this project.			
Q.4	(a)	Explain the Layers of SCM with labelled diagram and an example.	2.5M	CO4	L3 L4
	(b)	Summarize your understanding on software reengineering and state how it behaves as a rebuilding activity.			

ACAD-27 a)

Shri Ramdeobaba College of Engineering and Management,  
Nagpur -440013Iss. No.: 01.  
Rev. No.: 00  
Date of Rev:  
01/01/2018

Ref. Clause(s): 9.1

Department:  
Computer Science  
and EngineeringSemester: VI Semester  
Course Code: CST 358  
Course Name: Compiler Design

Shift: I

Page: 01/02

Programme:  
B.E.(CSE)

Test: 2

Date of Exam:  
16/04/2022

Max Marks: 15

Session: 2021-22

Time: 1 Hour [4:00 PM - 5:00 PM]

Instructions: Give proper assumptions wherever necessary.

Que		Marks	CO	EO
Q.1	<p>Construct the intermediate Three Address Code (TAC) using SDTS for the given language construct. Show the annotated parse tree and the TAC generated. Also write the SDTS of while loop.</p> <pre> while(not(a&gt;b)) do begin     if(c&gt;5) then         c=c-1; end </pre> <p>What is the significance of S.next . Also give the value of target of S.next.</p>	5 M	CO3	L3
Q.2	<p>Perform IN OUT analysis of the following program flow graph.</p> <pre> graph TD     B1["(1) a = 2; (2) b = 1;"] --&gt; B2["(3) c = a + 2 (4) d = c + b"]     B1 --&gt; B4["(6) c = c + 1 (7) e = c * d"]     B2 --&gt; B3["(5) e = e + c"]     B3 --&gt; B4     B4 --&gt; B5["(8) d = e + 2 (9) b = d + e"] </pre> <p>Compute the UD chain for the statement <math>c = a + 2</math> in block B2 and <math>c = c + 1</math> in block B4 and find whether it is loop variant computation or not.</p>	5 M	CO4	L3, L4
3 (a)	<p>Generate the optimal order of execution for the following 3 address code using Heuristic Algorithm. Now generate target code for this optimal order using simple code generation algorithm. Calculate the total cost.</p> <p>T1=x * y T2=z + x T3=w / T2 T4=T3 + T1</p>	5 M	CO4	L4
OR				
3 (b)	<p>Determine the optimal number of registers for the computation:</p> <p>T1=a + b T2=c * d T3=e - T1 T4=f + 12 T5=T3 + T4</p> <p>Also generate the target code using genode() procedure.</p>	5 M	CO4	LS

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Ref. Clause(s): 9.1		
Department: Computer Science and Engineering	Semester : VI Course Code: CST359-4 Course Name: Data Warehousing and Mining	Shift: 1 & 2 Page: 01/01
Program: B.E	Test: 2	Date of Exam: 18/04/2022
Max Marks: 15	Session: 2021-22	Time: 1 hour

Instructions: (1) All questions are compulsory.  
(2) Clearly state all assumptions made.  
(3) Plot graphs on graph paper.

Q N	Question	Marks	CO	EO																																																							
1.	A database consists of nine transactions taken from grocery store. Enumerate all the frequent itemset using ECLAT algorithm with minimum support threshold S = 3 and minimum confidence threshold C = 65%. Show the candidate and frequent itemset for each database scan. List all the association rules that are generated and highlight the strong one, sort them by confidence.	05	CO4	L3																																																							
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2.	If Epsilon is 2 and minpoint is 2, what are the clusters that DBScan would discover with the following 8 examples : A1 = (2, 8), A2 = (4, 3), A3 = (8, 5), A4 = (3, 2), A5 = (4,6), A6 = (3, 4), A7 = (1, 3), A8 = (9, 2).  Draw the 10 by 10 space and illustrate the discovered clusters. What if Epsilon is increased to 3 ?	05	CO3	L3																																																							
3.	Given the following training dataset. Identify the root node using information gain and draw the initial decision tree.	05	CO4	L3																																																							
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