Additional Information for the QLM:

2.5.3 IT integration and reforms in the examination procedures and processes including Continuous Internal Assessment (CIA) have brought in considerable improvement in the Examination Management System (EMS) of the Institution

This .pdf file comprise the following:

1. Dissemination MSE in AAP
2. Sample ESE Audit Report
3. ISA Rubric in AAP
4. Sample POP-Quiz on MS-Teams
5. V-Refer Sample Page
6. ISA Evaluation Methods in Course Diary
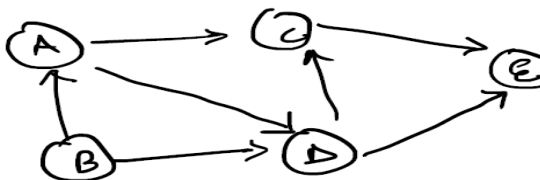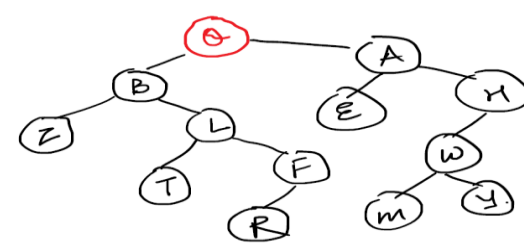
1. Dissemination MSE in AAP

8	Mis-Semester Examination / Other Class Test / Open Book Test (OBT)/Take Home Test (THT) Details

Tests	Test Dates	Module No.	CO Map	MSE Question Paper Pattern	Policy
MSE TEST	As per Institute schedule (Mid- Semester Week 8 tentatively)	01,02,06	CO1, CO2, CO6	Q.1. Solve 5 out of 7 Q.2. Solve 2 out of 3 Q.3. Solve 1 out of 2	MSE Re-test at Semester End

2. Sample ESE Audit Report

VIT Vidyalankar Institute of Technology Accredited A+ by NAAC (Autonomous Institute Affiliated to University of Mumbai)	*End Semester Examination (ESE)* *Question Paper Audit Form*

Branch: Computer Engineering				**Semester: 3**	**Subject: Data Structure**					
Syllabus, Unit Nos. for Exam: 3,4,5								**Total Marks: 50**		
Date of Exam: 19/11/2022							**Total Time Allotted: Hrs**			

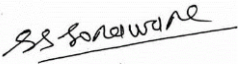| Que. No	Syllabus Unit	Question	CO Mapping	BL	Type			Score Scale (0-4) 0-4- Least 4- Highest	
					GQ	EQ	TP	Self-review (PS)	Reviewer (CM)
Q1)		**Attempt any five: (02 Marks each)**							
a)	4	Explain the following with respect to Tree data structure: Height of a node. Depth of a node.	CO3	L2	√			4	4
b)	3	Explain the node structure in Doubly Linked List.	CO2	L2		√		3	3
c)	3	List Advantage of Linked List implementation of data structure as compared to array implementation.	CO2	L1		√		4	4
d)	3	Write a pseudocode to insert an element at end in Singly Linked List.	CO2	L3		√		4	4
e)	4	Construct a Binary Search tree using the following: 90, 12, 68, 34, 62, 45,55	CO3	L2	√			4	4
f)	4	Construct Expression tree for the following: M+G*N-Z/K+J	CO3	L3		√		4	4
g)	5	Specify the data best structure used for implementing Depth First Search and Breadth First Search Traversal in Graph.	CO5	L2	√			4	4
h)	5	Explain following with respect to Graph Data Structure: Connected node. Connected Graph.	CO3	L1		√		3	3
Q.2		**Attempt any two (5 Marks Each)**							
a)	5	Write a C program to implement Depth First Traversal in Graph Data Structure.	CO5	L3		√		4	4
b)	4	Construct a balanced AVL Tree using the following elements in given order: 50, 20, 60, 10, 8, 15, 32, 46, 11, 48	CO5	L3			√	4	4
c)	3	Write a C program to implement Queue Data Structure using Liked List (Main function is not expected)	CO2	L3		√		3	3

Q 3.	**Attempt any two (5 Marks Each)**									
a)	5	Explain Different Memory Representation of Graph Data Structure with example.	CO3	L2		√			4	4
b)	4	Explain B+ tree. Construct B+ tree of order 5 for following: 37,85,90,10,75,65,70,55,60,45,48,35,30	CO3	L2			√		4	4
c)	4	Apply Huffman encoding for "MAHARASHTRA", generate Huffman code for each character.	CO5	L3		√			4	4
Q 4.	**Attempt any one (10 Marks Each)**									
a)	5	Explain Topological Sorting on Graph Data Structure. Perform Topological sort on following Graph:	CO5	L2			√		4	4
b)	3	Write a C program to perform addition of two polynomials using Linked List.	CO2	L3		√			4	4
Q 5.	**Attempt any one (10 Marks Each)**									
a)	3	Write a C program to implement Circular Linked List with function to perform following operations: 1. Insert a node at beginning of linked list. 2. Insert a node at the end of Linked List 3. Display the elements in Linked List.	CO2	L3		√			4	4
b)	4	Explain following Tree Traversal Techniques with recursive function for each. 1. Inorder 2. Preorder. 3. Postorder Display the Inorder, Preorder and Postorder traversal of following tree:	CO3	L4			√		4	4

Should Question be modified: YES / NO

If Yes new Question/s

No.	Question	Marks
1		
2		
3		

4		
5		

Name and dated Signature:	Chairperson /Paper Setter (PS)	Cluster Mentor (CM)	
Name :	Swapnil Sonawane	Sanjeev Dwivedi	
Signature :	*(signature)*	*(signature)*	

List all Course Outcomes:

CO1	Student should be able to understand need and significance of Data structures, it types and various operations.
CO2	Students should be able to learn linear data structures like stack, queues, linked list and implement them.
CO3	Students should be able to learn non-linear data structures like trees, graphs and implement them.
CO4	Student should be able to demonstrate the use of appropriate searching technique for a given problem.
CO5	Students should be able to choose appropriate data structure for specified problem domain.

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Abbreviations Used:

Co- Course Outcomes

BL – Bloom's Taxonomy Level

GQ- General Questions

EQ_ Exam Questions

TP- Thought Provoking

3. ISA Rubric in AAP

6   **Rubric for Grading and Marking of In Sem Assessment(ISA) (inform students at the beginning of semester)-20 Marks.**

Theory ISA Rubrics-20 marks				Lab ISA Rubrics-25 marks			
Lecture (Attendance) Marks	Pop Quiz	Assignment	Course	Lab Journal Assessment	Attendance	Challenges	PBLE
05 Marks	05 Marks	05 Marks	05 Marks	10 Marks	5 marks	5 Marks	05 Marks

4. Sample POP-Quiz on MS-Teams

Assignment #3: Data Structure in Python (CMPN_Division-A_4_SBL_SwapnilSonawane)

It is based on Module #3 with CO: To develop program for data structure using built in functions in python

Hi, Swapnil. When you submit this form, the owner will see your name and email address.

* Required

1. Roll No: *

Enter your answer

2. Name: *

Enter your answer

3. Email ID: (vit.edu.in) *

4. To insert element in linked list at specific position we use: (1 Point) *

◯ append()

◯ insert()

◯ push()

◯ All of the above

5. To remove specific element from linked list we use: (1 Point) *

◯ pop()

◯ remove()

◯ delete()

◯ None of the above

5. V-Refer Sample Page

6. ISA Evaluation Methods in Course Diary

1.5   Recommendation of Cluster Mentor, External Industry & Academic Mentor

Meeting with	Cluster Mentor	Industry Mentor	External Academic Mentor
Meeting held on	28/07/2021	28/07/2021	--
Latest Technologies Related to this Course Discussed by External Cluster Mentors	Applications of data structure in industries Tools to calculate complexity of algorithms		

Module No.	Practical Expt./Assi-gnment/ Tutorials	NPTEL & Other Video	Interaction with Outside World	Collaborative or Group Activity	Co-Curricular Activity	Tests and Assessments	Any Other Recommendations
1	√		1	7	14	17	Take applications just after completion of ADT of data structure
2	√		1	7	14	17	--
3	√		1	7	14	17	--
4	√		1	7	14	17	More examples of AVL, B, B+ tree
5	√	√	1	7	13,14	17	Video demonstration on BFS and DFS
6	√		1	7	14	17	--

Beyond Syllabus Activity (BSA) Table

Type of BSA	Activity No.	Beyond Syllabus Activity	Type of BSA	Activity No.	Beyond Syllabus Activity
Experiential Learning/ Interaction with outside world	1	Guest Lectures by Industry Experts	Co-curricular Activity	13	Informative Videos (NPTEL I YouTube I TEDx I MIT OCW I edX I Coursera I Udemy)
	2	Workshop		14	Lecture Capture Usage
	3	Mini Project		15	Any other activity
	4	Industrial Visit	Test and Assessment	16	Class Test I Weekly Test
	5	Any other activity		17	Pop Quiz

Collaborative and Group Activity	6	Poster Presentation		18	Mobile APP Based Quiz
	7	Minute Paper		19	Open Book Test
	8	Student Seminar		20	Take Home Test
	9	Student Debate		21	Any other activity
	10	Panel Discussion I Mock GO			
	11	Mock Interview			
	12	Any other activity			