2.5.1 *Reforms in Continuous Internal Evaluation (CIE) System at the Institutional level*

There has been many reforms in Continuous Internal Evaluation (CIE) system. The evaluation system has been changing based on University Rules and changes in the Institute Policy. The notable reforms can be categorized into following models

- Model of CIE prior to academic year 2012-13
- Model of CIE between academic year 2012-13 to academic year 2014-15
- Model of CIE from academic year 2015-16

Model of CIE prior to academic year 2012-13:

Apart from mandatory University examination many other Continuous Internal Evaluations had been followed.Every week three Assignment Tests were conducted. All the course Assignment Tests were able to cover in two weeks. The tests were conducted during practical time wherein additional measures had been taken to avoid two test on one day. The Assignment Tests may cover major university theory questions, MCQ etc. In addition to this all lab assignments were conducted week wise and evaluated regularly. In few courses like project the progress seminars were conducted for evaluations. Preliminary examination was conducted at end of every semester based on university pattern.

Model of CIE between academic year 2012-13 to academic year 2014-15:

In the advent of introducing credit based system two Internal Assessment tests became mandatory apart from End Semester Examination from university side. In addition to these the following additional CIE were followed

- Two Assignment Tests during semester per theory course.
- Regular lab assignments every week during semester.
- Two progress seminars for project in a semester.
- Preliminary examination at the end of semester for all theory courses.

Model of CIE from academic year 2015-16:

The variety and frequency of CIE are maintained same as above CIE model and are reproduced as below;

- Two Internal Assessment Tests
- Two Assignment Tests during semester per theory course.
- Regular lab assignments every week during semester.
- Two progress seminars for project in a semester.
- Preliminary examination at the end of semester for all theory courses.
- End Semester Examination.

The major reforms during this model has been brought with reference to Outcome Based Education (OBE) model and quality of assessment. More emphasize has been provided on students evaluation with respect to course outcomes attainment.

The question paper audit has been started for improving quality of questions. Department wise committee has been formed which verifies whether questions set are based on course outcomes and level of blooms taxonomy.

For effective implementation of OBE Model and monitoring students outcome attainment, Academic Performance Monitoring System(APMS) has been developed and deployed. The APMS system effectively assist in monitoring and evaluation of students centric learning outcomes.

Sample question paper format of Internal Assessment Tests

Internal Assessment Test-1

Agnel Charities'
Fr. C. Rodrigues Institute of Technology, Vashi, Navi-Mumbai
Department of Computer Engineering

Internal Assessment – I (SH-2019)

Subject: Data Structures **SEM - III**

Date: 16/08/2018 **Total Marks: 20**

Q. No	Question	CO Number [Cognitive Level]	Marks
Q1	**Answer any five**	**(CO-1) [Understand]**	**10**
a.	Exemplify types of data structures.		
b.	Illustrate priority queue and its types.		
c.	Mention and justify which data structure is used for following cases. 1. Performing UNDO operation in MS-Word. 2. Printing documents.		
d.	Compare linked list with Array.		
e.	Exemplify infix, postfix and prefix expression.		
f.	Differentiate Singly and doubly linked list.		
Q2	**Answer any one**	**(CO-2) [Apply]**	**05**
a.	Write a C program for circular queue using array		
b.	Write a C program for converting infix expression to postfix expression using stack data structure		
Q3	**Answer any one**	**(CO-3) [Apply]**	**05**
a.	Write a C program for singly linked list to perform following operations 1. Create SLL 2. Inserting a node after given node 3. Deleting first node		
b.	Write a C program for doubly linked list to perform following operations 1. Create DLL 2. Inserting a node before a specific node 3. Deleting a node before a specific node		

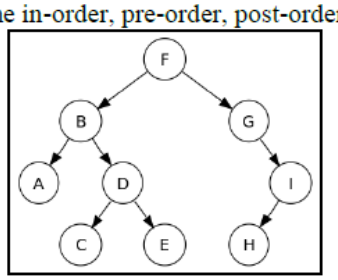
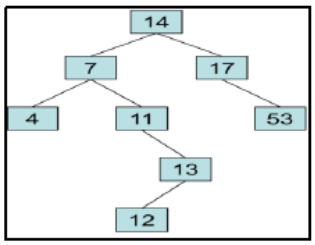
Internal Assessment Test-2

Agnel Charities'
Fr. C. Rodrigues Institute of Technology, Vashi, Navi-Mumbai
Department of Computer Engineering

Internal Assessment – II (SH-2019)

Subject: Data Structures **SEM - III**

Date: /09/2019 **Total Marks: 20**

	Question	(CO Number) [Cognitive Level]	Marks
Q1	**Answer any five**	**(CO-4) [Apply]**	**10**
a.	Construct Binary Tree from following traversal In–order Traversal: 7,10,4,3,1,2,8,11 Pre order Traversal: 4,10,7,3,1,11,8,2		
b.	Create a Binary Search Tree for following list of numbers 18 , 25, 16, 36, 08, 29, 45, 12, 32, 19		
c.	Construct B+ tree of order 5 for the following dataset 90, 27, 7, 9, 18, 21, 3, 4, 16, 11, 1, 72		
d.	Draw the binary expression tree that represents the following postfix expression: A B + C * D –		
e.	Find the in-order, pre-order, post-order traversal 		
f.	Construct balance AVL tree for given tree.(current node is 12) 		
Q2	**Answer any one**	**(CO-5) [Understand]**	**05**
a.	Define Graph and demonstrate any two techniques of graph representation		
b.	Write DFS algorithm and demonstrate with example.		
Q3	**Answer any one (CO-6) [Knowledge, Apply]**	**(CO-6) [Apply]**	**05**
a.	Write a C program to implement Binary search on sorted list of array and explain with example		
b.	Write a C program for Insertion sort and demonstrate with example.		

Sample question paper format of Assignment Tests

Assignment test-1

Agnel Charities
Fr. C. Rodrigues Institute of Technology, Vashi, Navi-Mumbai
Department of Computer Engineering

Assignment Test – I (SH-2019)

Subject: Data Structures **SEM - III**

Date: 07/08/2019 **Total Marks: 25**

Roll Number: **Batch: B__**

Name of Student:

Q.No	SET-A	CO & Cognitive Level	Max Marks	Marks Obtained
Q1	Write ADT for Queue data structure.	CO1 [Knowledge]	05	
Q2	Write a program to convert infix expression to postfix expression using stack.	CO2 [Knowledge , Apply]	10	
Q3	Write a program to implement Circular linked list with all operations i. Create ii. Display iii. Insert at beginning iv. Delete from end	CO3 [Knowledge , Apply]		
Total Marks				
Signature of staff				

Agnel Charities
Fr. C. Rodrigues Institute of Technology, Vashi, Navi-Mumbai
Department of Computer Engineering

Assignment Test – I (SH-2019)

Subject: Data Structures **SEM - III**

Date: 07/08/2019 **Total Marks: 25**

Roll Number: **Batch: B__**

Name of Student:

Q.No	SET-B	CO & Cognitive Level	Max Marks	Marks Obtained
Q1	Exemplify linear and non-linear data structures.	CO1 [Knowledge]	05	
Q2	Write a program to evaluate postfix expression using stack data structure	CO2 [Knowledge , Apply]	10	
Q3	Write a program to implement Singly linked list with all operations v. Create vi. Display vii. Insert at beginning viii. Delete from end	CO3 [Knowledge , Apply]		
Total Marks				
Signature of staff				

Assignment Test-2

Agnel Charities
Fr. C. Rodrigues Institute of Technology, Vashi, Navi-Mumbai
Department of Computer Engineering

Assignment Test – II (SH-2019)

Subject: Data Structures **SEM - III**

Date: /09/2019 **Total Marks: 30**

Roll Number:

Name:

Batch:

	SET-A	CO	Max Marks	Marks Obtained
Q1	Construct AVL tree for following elements 40, 23, 32, 84, 55, 88, 46, 71, 57 OR Apply Huffman coding for "ENGINEERING". Determine the code for the characters.	**CO-4 [Apply]**	**10**	
Q2	Write the function for DFS Traversal of a graph. Demonstrate its working with an example.	**CO-5 [Apply]**	**10**	
Q3	Apply linear probing hash functions to insert values in the Hash table of size 10. Show number of collisions occurs in each technique. 27, 72, 63, 42, 36, 18, 29,101	**CO-6 [Apply]**	**10**	
Total Marks				
Signature of staff				

Agnel Charities
Fr. C. Rodrigues Institute of Technology, Vashi, Navi-Mumbai
Department of Computer Engineering

Assignment Test – II (SH-2019)

Subject: Data Structures **SEM - III**

Date: /09/2019 **Total Marks: 30**

Roll Number:

Name:

Batch:

	SET-B	CO	Max Marks	Marks Obtained
Q1	Construct AVL tree for following elements 16, 27, 9, 11, 36, 54, 81, 63, 72 OR Apply Huffman coding for "MALAYALAM". Determine the code for the characters.	**CO-4 [Apply]**	**10**	
Q2	Write the function for BFS Traversal of a graph. Demonstrate its working with an example.	**CO-5 [Apply]**	**10**	
Q3	Apply linear probing hash functions to insert values in the Hash table of size 10. Show number of collisions occurs in each technique. 28, 55, 71, 67, 11, 10, 90, 44	**CO-6 [Apply]**	**10**	
Total Marks				
Signature of staff				

Sample question paper format of Preliminary Examination

Agnel Charities'
Fr. C. Rodrigues Institute of Technology, Vashi, Navi-Mumbai
Department of Computer Engineering

Preliminary Examination (SH-2019)

Subject: DS/(CSC305) **SEM - III**

Date: **Total Marks: 80**

N.B.
1. Question No.1 is compulsory
2. Attempt any three out of remaining five questions
3. Assumptions made should be clearly stated
4. Figures to the right indicate full marks

Q1 a.	State differences between Singly Linked List and Doubly Linked List.	05M	CO1
Q1 b.	Demonstrate Double ended queue with example.	05M	CO2
Q1 c.	Demonstrate Splay tree with example.	05M	CO4
Q1 d.	Write a C program for Insertion sort and demonstrate with example.	05M	CO6
Q2 a.	Exemplify linear and non-linear data structures and Compare Linked List with Array	10M	CO1
Q2 b.	Write a program to convert infix expression to postfix expression using stack. Convert the following expression to postfix (f-g)*(a+b)*(c-d))/e	10M	CO2
Q3 a.	Write a C program to implement circular queue using linked list data structure.	10M	CO3
Q3 b.	Illustrate AVL tree. Construct AVL for following elements 63, 52, 49, 83, 92, 29, 23, 54, 13, 99	10M	CO4
Q4 a	Write BFS algorithm and demonstrate with example.	10M	CO5
Q4 b.	Apply linear probing and quadratic probing hash functions to isert values in the Hash table of size 11. Show number of collisions occure in each technique. 23, 55, 10, 71, 67, 32, 100, 18, 10, 90, 44	10M	CO6
Q5 a.	Write a recursive and non-recursive functions to calculate GCD of a 2 numbers	10M	CO1
Q5 b.	Write a C program for Priority Queue.	10M	CO2
Q6 a.	Write a C program for polynomial addition using Linked list.	10M	CO3
Q6 b.	Write a C program to delete node from Binary search tree considering all the cases	10M	CO4

Practical Assessment

Experiment Cover Page

Agnel Charities'

Fr. C. RODRIGUES INSTITUTE OF TECHNOLOGY

DEPARTMENT: _____

LABORATORY CONTINUOUS ASSESSMENT FORMAT

First / Second Half of _____

Course Name:	
Name of the Teacher:	
Name of the Student:	
Roll No:	**Semester:**
Batch:	**Practical No:**
Date of Practical:	**Date of Report Submission:**
Title:	
Course Outcome:	

ASSESSMENT

Sr. No.	Parameter for Assessment	Marks	Rubrics		
1.	**Practical Performance / Active Participation (03Marks)**		Above Average (03)	Average (02)	Below Average (01)
2.	**Report Presentation (02 Marks)**		Above Average (02)	Average (01)	Below Average (00)
3.	**Understanding (03 Marks)**		Above Average (03)	Average (02)	Below Average (01)
4.	**Regularity in Submission (02 Marks)**		Timely (02)	Late (01) (≤ 2 Weeks from the date of Practical)	Very Late (00) (> 2 Weeks from the date of Practical)
Total Marks (10):					

Teacher's Signature: **Date:**

Sample assessed cover page

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Agnel Charities'

Fr. C. RODRIGUES INSTITUTE OF TECHNOLOGY

DEPARTMENT: COMPUTER ENGINEERING

LABORATORY CONTINUOUS ASSESSMENT FORMAT

Second Half of 2019

Course Name: Data Structures Lab

Name of the Teacher: Prof. Kavita Shelke

Name of the Student: Anuj Surendra Kotarkar

Roll No: 101835	**Semester:** 3
Batch: 2	**Practical No:** 2
Date of Practical: 19/7/19	**Date of Report Submission:** 26/7/19

Title: 2-A.) Write a C Program to implement well-formness of Paranthesis using Stack.
2-B.) Write a C-Program to implement post fix evaluation using stack.

Course Outcome: Develop a program to implement Stack data structure & its Application

ASSESSMENT

Sr. No.	Parameter for Assessment	Marks	Rubrics		
1.	Practical Performance / Active Participation (03Marks)	03	Above Average (03)	Average (02)	Below Average (01)
2.	Report Presentation (02 Marks)	01	Above Average (02)	Average (01)	Below Average (00)
3.	Understanding (03 Marks)	03	Above Average (03)	Average (02)	Below Average (01)
4.	Regularity in Submission (02 Marks)	02	Timely (02)	Late (01) (≤ 2 Weeks from the date of Practical)	Very Late (00) (> 2 Weeks from the date of Practical)

Total Marks (10): 09/10

Teacher's Signature: [signature] **Date:** 30/7/19

Project Evaluations

Project Evaluation:

Minimum two project progress presentations are conducted for continuously monitoring the performance of the students in each semester. Students are required to meet the Guide weekly to interact and inform the progress of the project work. The presentation will be evaluated by panel of examiners and project guides. The panel of examiners evaluate out of 30 % marks while the guide evaluates out of 70% marks. Evaluation is done based on the criteria as shown below.

Project evaluation is done based on the following Criteria.

1. Literature Review
2. Problem identification and definition
3. Appropriate use of Modern tool.
4. Ethics followed
5. Oral and Written Communication
6. Planning and Finance Management
7. Efficiency of Group (Team Effort)
8. Impact on social issues
9. Over all Execution of Project.
10. Problem Solution and Result Validation

During the Project progress presentations, the evaluation of course outcome is carried out by considering the above mentioned Evaluation Criteria. In each progress presentation few of the criteria are taken for CO evaluation. The sample is shown below

Final year Project progress presentation-I 2017-18 -Marks out of (10)

GrNo	NAME OF STUDENT	Identify problem based on societal research needs (CO-1)	Select and apply modern tools (CO-2)	Apply knowledge and skill to solve societal problems (CO-3)	Analyse impact of solutions in societal and environmental context for sustainable development (CO-4)
4	WAGHULE PARIJA ANIL	8	7	7	7
	SADHU ANKUSH	8	7	7	7
	RANE TEJASWINI SUNIL	7	7	8	6
	SHEFARD RONNIE FRANCIS	6	6	7	7
5	KARUNAKARAN RAKESHKUMAR	8	8	8	8
	RAJPUT SHUBHANSHU SINGH	8	8	8	8
	KHARDENAVIS AMAIYA	7	7	7	7
	JERINE JOJO	6	6	7	6
9	PHANSALKAR SHAUNAK V.	7	7	7	8
	EDAPPILLY SALMON JOY	7	7	7	7
	TITUS K THOMAS	7	7	7	7
	PILLAI VISHNU SREEKUMAR	6	6	6	6
10	FERNANDES SIMON VINCENT	7	7	7	7
	CHAULKAR PRANAV PRAVIN	7	7	7	7
	CEREJO SAMUEL SANJAY	8	7	7	7
	YADAV AASHISH	6	7	6	6
11	TISEKAR NAJID TAWFIQ	8	8	8	8
	PATIL SAURABH SUNDER	8	8	8	8
	AKSHAY SAKUNDE	7	7	7	6
12	RODRIGUES MUERUS ROMAN	8	8	8	8
	LAD SWAPNIL SANJAY	8	8	8	8
	LOPES LANCY PETER	8	7	7	8
	MISQUITTA RUSSELL RICHARD	7	7	7	7
	ANIKET .n	6	6	6	6
15	JOSHI ANVAY				
	PUKALE AKSHAY ANAND	8	8	8	8
	SAJEET M.J	8	7	7	7
	ENAMAKEL JASON TONY	7	7	7	7
18	ANGELA SEKAR	8	8	8	8
	LOBO ALOYSIUS JASMINE	7	7	7	7
	SLADANHA BRIAN FRANK	7	7	7	7
	K.SAURABH	6	6	6	6
	NILESH N. DIVEKAR	7			
19	RONALD JOSEPH	8	8	8	8
	D'MELLO NATHAN EUSTACE	7	7	7	7
	KANNANAYKAL JUSTIN JOLLY	6	7	7	7
	NIKHIL DALVI	6	6	6	6

Excellent-10
very good- 8
Good — 6
Average — 04
Satisfactory -02

Final year Project progress presentation-IV -2017-18 -Marks out of (10)

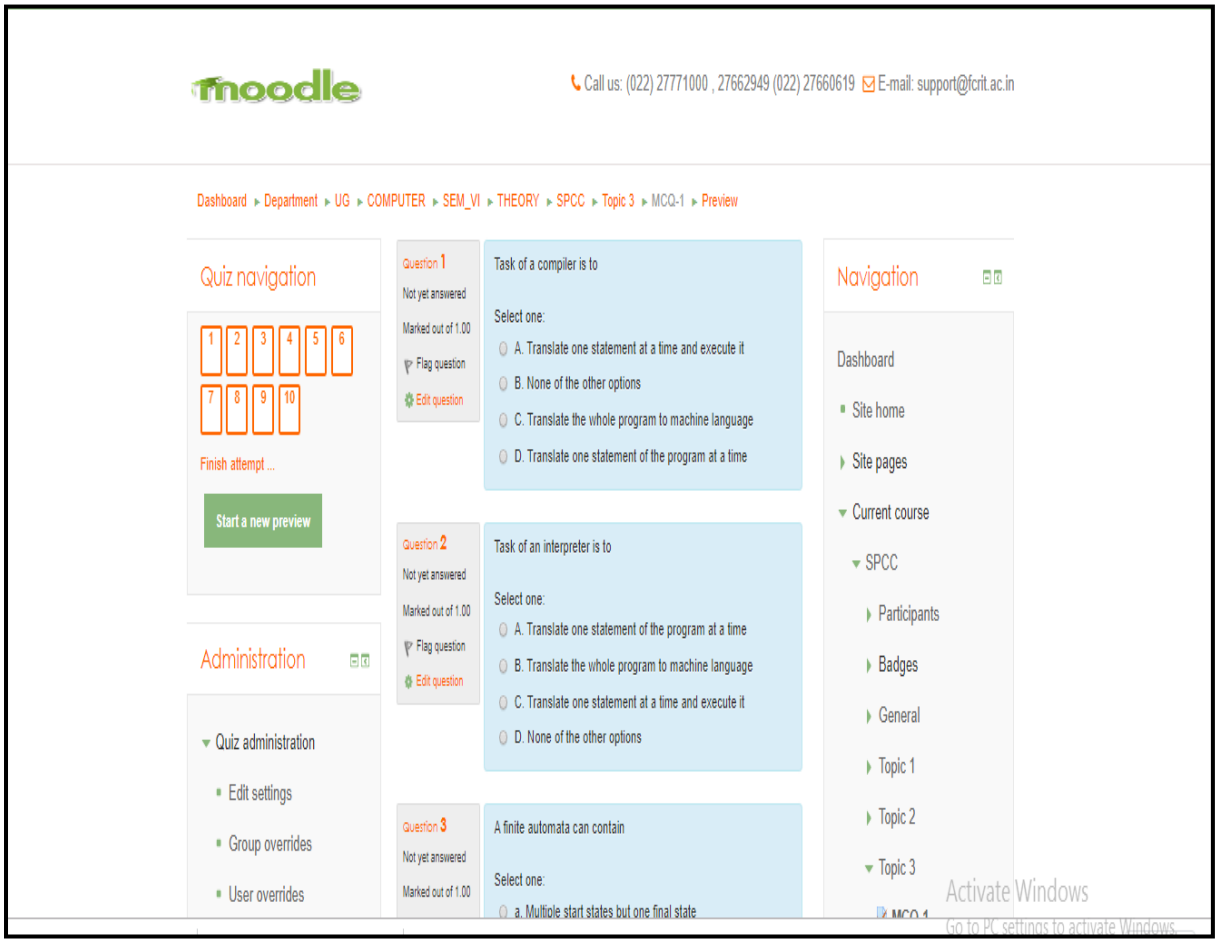
GrNo	NAME OF STUDENT	Norms of engg Practices&professional ethics(CO-1)	Skill to work as a member of a team/leader	Written and oral communication	Priciples of project management	Life long learning
1	PAWAR AMEY ANKUSH	06	06	06	04	06
	SHENOY ASHWIN RAMCHANDRA	06	06	06	04	06
	WARTIKA SAMSON KEVIN SUNIL	06	06	06	04	06
	SRIKANT P. THAVRE	04	06	04	04	06
2	DE SOUZA JOEL IVO	6	6	7	6	6
	PRESTON DIAS	5	5	5	7	7
	LOPES RAYMOND LAWRENCE	5	5	5	7	5
	AKASH NEMLEKAR	5	5	6	5	7
3	INAMDAR ATHARVA SACHIN	5	5	5	4	5
	JADHAV SOHAM VINAYAK	5	4	5	4	5
	PRANAV MAPARI	4	4	5	4	5
	SATHE SOUMITRA	5	4	5	4	5
6	PANSARE MAYUR LAXMAN	08	08	06	06	08
	MISHRA SHYAMRANJAN S.	08	08	08	06	08
	KUZHIYALIPADAVIL BASIL	06	06	06	06	06
7	WARRIER TANMAY SUNIL	6	7	7	5	7
	CHAUGULE TAYYBALI RAHIMAN	5	7	5	6	5
	GARAD SUMEET DHANRAJ	7	8	7	7	6
	ROSHAN GEORGE	5	6	6	5	7
8	SINGH VIBHANSHU A.	5	08	07	07	06
	MATHEW THOMAS	6	07	06	06	07
	PHATAK SHAMIKA MANOJ	7	06	07	05	06
13	PEREIRA TERRENCE RICHARD	5	07	06	06	06
	PATIL SAGAR DEEPAK	6	06	07	05	06
	BREAN BURBOZ	05	06	06	06	05
	RODRIGUES SLYDEN ALFRED	08	06	05	05	00
14	HARIHARAN SARVESH	08	07	08	~~07~~ 06	08
	SANIKA NANOTI	08	08	08	~~07~~ 06	08
	KHAIRE TUSHAR SANJAY	08	08	08	~~07~~ 06	08
16	GARJE SAGAR SOMINATH	08	08	08	06	08
	CHETAN MATHIAS	08	08	08	06	08
	ANIKET S. THORAT	08	08	08	06	08
	K. JEFFY JACOB	08	08	08	06	08
17	SUNTHA SURAJKUMAR D.	08	08	08	06	08
	GITE JAY MUKESH	08	08	08	06	08
	NAIR SAGAR VENU	08	06	06	06	08
	SAWANT OMKAR VASANT	08	08	08	06	08

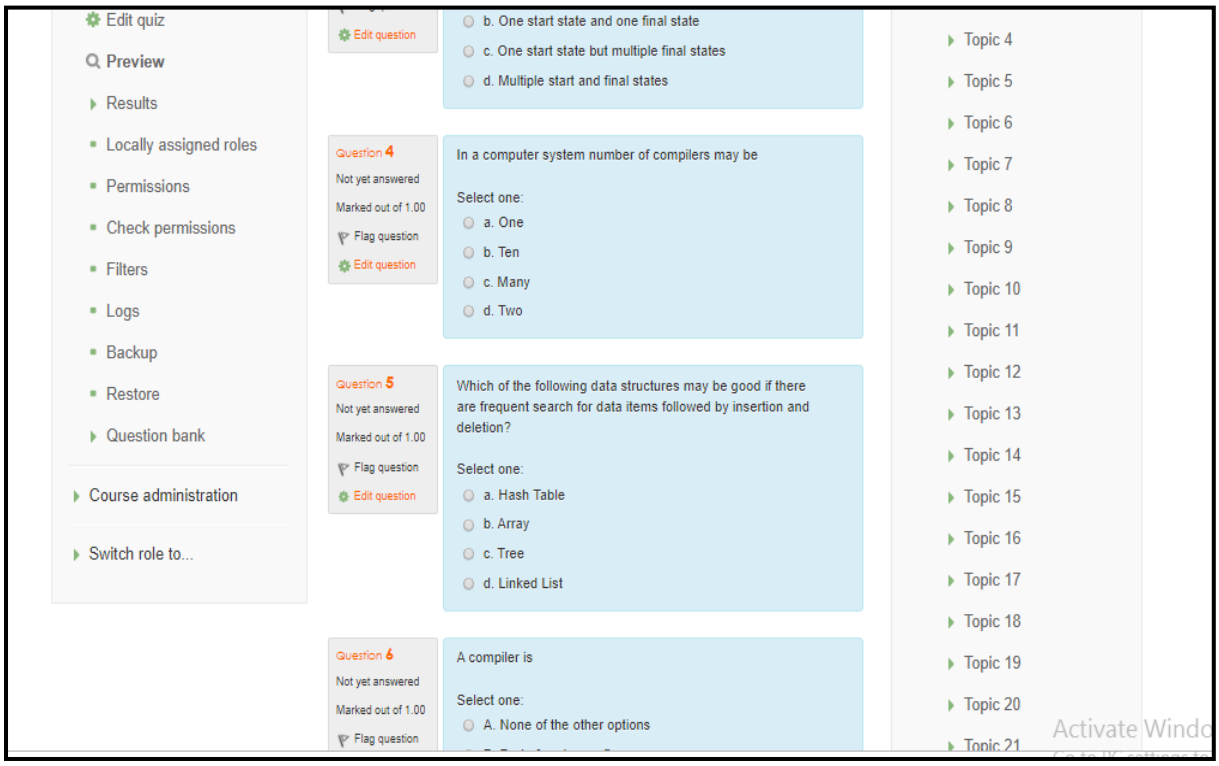
Report not submitted. ?

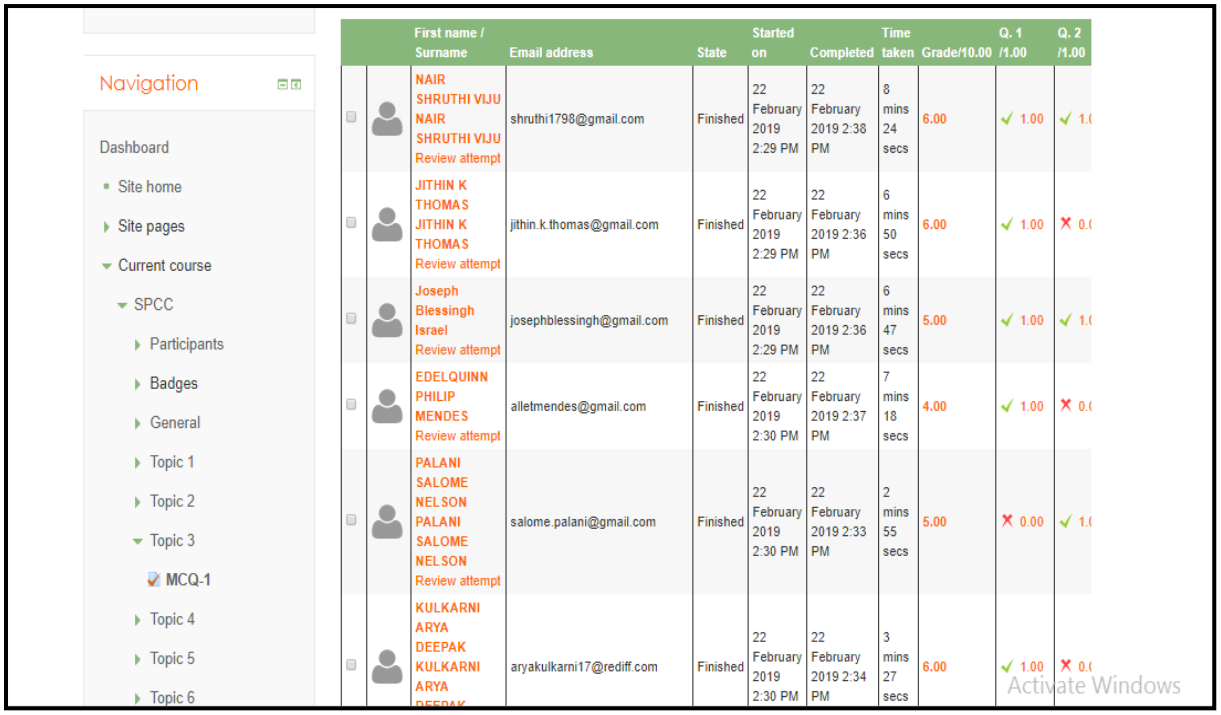
5/3

LMS for MCQ, Quizzes, Assignments

Sample MCQ on LMS







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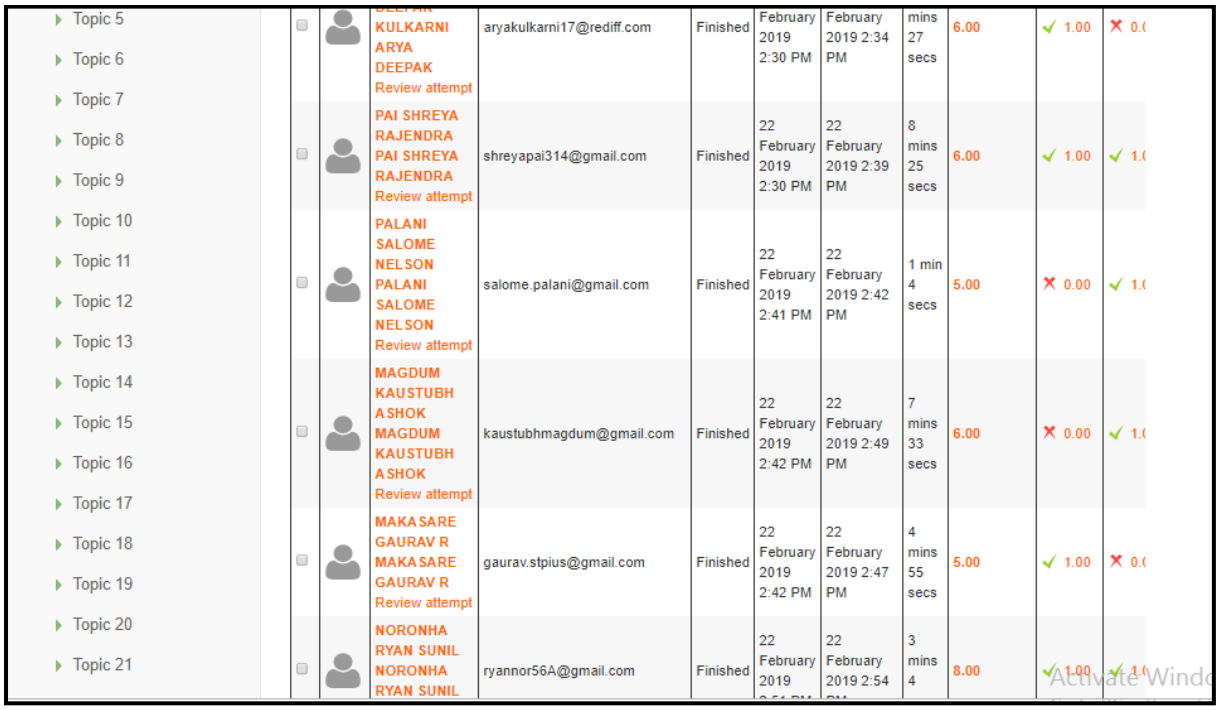
First name / Surname	Email address	State	Started on	Completed	Time taken	Grade/10.00	Q. 1 /1.00	Q. 2 /1.00
NAIR SHRUTHI VIJU NAIR SHRUTHI VIJU Review attempt	shruthi1798@gmail.com	Finished	22 February 2019 2:29 PM	22 February 2019 2:38 PM	8 mins 24 secs	6.00	✓ 1.00	✓ 1.(
JITHIN K THOMAS JITHIN K THOMAS Review attempt	jithin.k.thomas@gmail.com	Finished	22 February 2019 2:29 PM	22 February 2019 2:36 PM	6 mins 50 secs	6.00	✓ 1.00	✗ 0.(
Joseph Blessingh Israel Review attempt	josephblessingh@gmail.com	Finished	22 February 2019 2:29 PM	22 February 2019 2:36 PM	6 mins 47 secs	5.00	✓ 1.00	✓ 1.(
EDELQUINN PHILIP MENDES Review attempt	alletmendes@gmail.com	Finished	22 February 2019 2:30 PM	22 February 2019 2:37 PM	7 mins 18 secs	4.00	✓ 1.00	✗ 0.(
PALANI SALOME NELSON PALANI SALOME NELSON Review attempt	salome.palani@gmail.com	Finished	22 February 2019 2:30 PM	22 February 2019 2:33 PM	2 mins 55 secs	5.00	✗ 0.00	✓ 1.(
KULKARNI ARYA DEEPAK KULKARNI ARYA	aryakulkarni17@rediff.com	Finished	22 February 2019 2:30 PM	22 February 2019 2:34 PM	3 mins 27 secs	6.00	✓ 1.00	✗ 0.(



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- Topic 15
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- Topic 21

KULKARNI ARYA DEEPAK Review attempt	aryakulkarni17@rediff.com	Finished	February 2019 2:30 PM	February 2019 2:34 PM	mins 27 secs	6.00	✓ 1.00	✗ 0.(
PAI SHREYA RAJENDRA PAI SHREYA RAJENDRA Review attempt	shreyapai314@gmail.com	Finished	22 February 2019 2:30 PM	22 February 2019 2:39 PM	8 mins 25 secs	6.00	✓ 1.00	✓ 1.(
PALANI SALOME NELSON PALANI SALOME NELSON Review attempt	salome.palani@gmail.com	Finished	22 February 2019 2:41 PM	22 February 2019 2:42 PM	1 min 4 secs	5.00	✗ 0.00	✓ 1.(
MAGDUM KAUSTUBH ASHOK MAGDUM KAUSTUBH ASHOK Review attempt	kaustubhmagdum@gmail.com	Finished	22 February 2019 2:42 PM	22 February 2019 2:49 PM	7 mins 33 secs	6.00	✗ 0.00	✓ 1.(
MAKASARE GAURAV R MAKASARE GAURAV R Review attempt	gaurav.stpius@gmail.com	Finished	22 February 2019 2:42 PM	22 February 2019 2:47 PM	4 mins 55 secs	5.00	✓ 1.00	✗ 0.(
NORONHA RYAN SUNIL NORONHA RYAN SUNIL	ryannor56A@gmail.com	Finished	22 February 2019	22 February 2019 2:54	3 mins 4	8.00	✓ 1.00	✓ 1.(


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