



Rajgad Dnyanpeeth's
SHRI CHHATRAPATI SHIVAJIRAJE COLLEGE OF ENGINEERING
No. 237, Satara-Pune, NH-4, Dhangawadi, Tal: Bhor, Dist: Pune -412205 (MS), India.
Website: www.rajgad.edu.in, Email Id: sescocoe@gmail.com

Course: Data Structures and Algorithms(2019 Course)
Course Code : 210252
Semester: S.E- SEM 4
Academic Year : 2020-21

Course Objectives:

1. To develop a logic for graphical modeling of the real life problems.
2. To suggest appropriate data structure and algorithm for graphical solutions of the problems.
3. To understand advanced data structures to solve complex problems in various domains.
4. To operate on the various structured data
5. To build the logic to use appropriate data structure in logical and computational solutions.
6. To understand various algorithmic strategies to approach the problem solution.

Course Outcomes: On completion of the course, student will be able to

1. Identify and articulate the complexity goals and benefit of good hashing scheme for real world problems.
2. Apply Non Linear data structures for solving problems of various domains.
3. Design and specify the operations of non linear based abstract data types and implement them in a high programming language..
4. To analyze the algorithmic solutions for resource requirements and optimization
5. Use efficient indexing methods and multiway search techniques to store and maintain data
6. To use appropriate modern tools to understand and analyze the functionalities confined to the data structure usage.





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Program Outcomes

Students are expected to know and be able –

- PO1:** To apply knowledge of mathematics, science, engineering fundamentals, problem solving skills, algorithmic analysis and mathematical modeling to the solution of complex engineering problems.
- PO2:** To analyze the problem by finding its domain and applying domain specific skills
- PO3:** To understand the design issues of the product/software and develop effective solutions with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- PO4:** To find solutions of complex problems by conducting investigations applying suitable techniques.
- PO5:** To adapt the usage of modern tools and recent software.
- PO6:** To contribute towards the society by understanding the impact of Engineering on global aspect.
- PO7:** To understand environment issues and design a sustainable system.
- PO8:** To understand and follow professional ethics.
- PO9:** To function effectively as an individual and as member or leader in diverse teams and interdisciplinary settings.
- PO10:** To demonstrate effective communication at various levels.
- PO11:** To apply the knowledge of Computer Engineering for development of projects, and its finance and management.
- PO12:** To keep in touch with current technologies and inculcate the practice of lifelong learning.

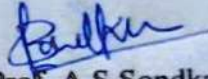




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Mapping of CO's vs PO's

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓			✓							✓	
CO2	✓	✓									✓	
CO3	✓	✓		✓								
CO4	✓	✓		✓								
CO5	✓			✓							✓	
CO6	✓			✓							✓	


Prof. A.S. Sondkar
Subject Teacher



Calculation for CO and PO attainment for all students

ASSIGNMENT NO.: 1 (Three Units I, II & III)

Roll NO.	Question No.	1	2	3	Total Marks
	Sub-questions				
	Max. Marks	10	10	10	
	COs satisfied	I,IV	II,III,IV	II,III,IV	
SCO19101	ASFIYAN NAZIM ATTAR	7	8	8	23
SCO19102	BHELKE SHEREYA UMESH	7	8	8	23
SCO19103	BOBADE PRACHI SANTOSH	9	9	10	28
SCO19104	BORANE SHUBHAM SANDIP	7	6	6	19
SCO18105	CHAVAN RITAMBARA SHANKAR	8	10	9	27
SCO19106	DABADE SUYASH SUNIL	9	8	8	25
SCO19107	DHADAVE AJINKYA ROHIDAS	7	6	6	19
SCO19108	DHADVE PRAGATI UDDESH	9	8	8	25
SCO19109	GAIKWAD SHUBHANGI SURYAKANT	9	8	8	25
SCO18110	GAIKWAD SUSHIL PANDURANG	6	6	6	18
SCO19111	GARUD AKSHADA ANIL	7	6	6	19
SCO19112	GAWALI KARTIK RAKESH	6	6	7	19
SCO18113	GORAD AKSHADA RAJENDRA	6	7	6	19
SCO19114	ITHAPE SHREYA SANTOSH	4	5	4	6
SCO19115	JADHAV DHIRAJ ANNA	4	4	5	13
SCO19116	JAGDALE HARSHADA SHIVAJI	8	8	7	23
SCO19117	KALUSE SAHIL SANJAY	5	4	4	13
SCO18118	KAMBLE PRASHANT MOHAN	6	5	6	17
SCO19119	KANADE DATTA CHETAN	8	9	7	24
SCO19120	KHANDALE KIRAN PRAKASH	7	6	7	20
SCO19121	KHOPADE AJIT DATTATRAYA	6	7	6	19
SCO17122	KINHALE KAJAL MOHAN	6	5	5	16
SCO19123	KIRVE MAKRAND SHASHIKANT	6	5	4	12
SCO19124	KOLI GAURAV RAJENDRA	5	5	4	14
SCO19125	KORADE TUJAY KAMLAKAR	8	7	6	21
SCO19126	KSHIRSAGAR PRATHAMESH DILIP	4	5	5	14
SCO19127	KUMBHAR RUTUJA DATTATRAYA	7	6	10	23
SCO19128	LAWANDE SWARNIL BHALCHANDRA	5	5	4	14
SCO19129	MAHANDAVE KUNAL DILIP	5	5	6	16
SCO19130	MUNDE ABHIJEET BHAGWAT	6	6	4	16
SCO19131	PADALE TEJAS CHANDRAKANT	6	5	6	17
SCO19132	PANDIT AKASH FAKIRCHAND	6	7	6	19
SCO18133	PATANKAR SAMARJEET SATISH	6	7	6	19
SCO19134	RAUT POOJA SHARAD	6	7	5	18
SCO17135	SALUNKE SANGRAM MANOHAR	6	5	5	16
SCO19136	SASTE SHUBHAM JALINDAR	6	7	6	19
SCO19137	SHEDGE POOJA SAMBHAJI	6	7	8	21
SCO19138	SHILIMKAR ASHWINI VIJAY	5	7	6	18



Calculation for CO and PO attainment for all students

ASSIGNMENT NO.: I (Three Units I, II & III)

Roll NO.	Question No.	1	2	3	Total Marks
	Sub-questions				
	Max. Marks	10	10	10	
	COs satisfied	I,IV	II,III,IV	II,III,IV	
SCO19139	SHINDE DIPAK NARESH	6	6	5	17
SCO19140	SHINDE SANDHYA PRABHAT	6	6	6	18
SCO19141	SHIVTARE HARSHADA SANJAY	5	6	7	18
SCO18142	SONAWANE SHIVAM LAXMAN	7	6	6	19
SCO19143	SURYAWANSHI ANIKET SUNIL	6	7	6	19
SCO19144	SURYAWANSHI KOMAL BHANUDAS	5	6	8	19
SCO19145	TODKAR OMKUMAR MURLIDHAR	6	5	6	17
SCO19146	UMBARKAR KUNAL SUNIL	5	6	6	17
SCO19147	YELE PRATIKSHA JAGDISH	5	6	6	17
SCO19148	YEWALE YASH DATTATRAY	7	6	5	18
SCO20249	BAIT RUSHITA	6	5	7	18
SCO20250	BHINGARE ISHA	5	6	6	17
SCO20251	BHOSALE SHWETA	6	6	5	17
SCO20252	BORSARE SHUBHAM TARUDUTTA	5	6	6	17
SCO20253	DERE SUNANDA	4	5	6	15
SCO20254	DEVGIRIKAR VIDYA	6	4	5	15
SCO20255	DIGHE SUPRIYA DATTATRAY	6	7	6	19
SCO20256	GAIKWAD POOJA BALKRUSHNA	7	8	8	23
SCO20257	GUJAR SAYALI SATISH	7	8	9	24
SCO20258	INGALE YASH	6	5	5	16
SCO20259	JADHAV HARSHAD	6	6	5	17
SCO20260	JADHAV SHWETA	6	7	6	19
SCO20261	JAGTAP GAURAVI	5	5	5	15
SCO20262	KACHI ADITI	10	9	8	27
SCO20263	KANADE OMKAR RAJESH	7	6	6	19
SCO20264	KHAIRE PRAJAKTA	6	5	4	15
SCO20265	KSHIRSAGAR AKASH	6	5	5	16
SCO20266	KSHIRSAGAR VAIBHAV	5	6	5	16
SCO20267	MANDHARE RUPALI LAXMAN	8	8	7	23
SCO20268	MORE PREETI	6	6	6	18
SCO20269	PATIL VAISHNAVI DEVENDRA	6	4	5	15
SCO20270	PAWAR MAYUR RAVINDRA	4	4	5	13
SCO20271	PAWAR SNEHAL	5	6	6	17
SCO20272	POPHALE KISHORI	6	7	6	19
SCO20273	SHILIMKAR NAMRATA	6	6	7	19
SCO20274	SONWANE SONAL	6	6	6	18
SCO20275	DNYANOBA	6	5	4	15
SCO20276	THOMBARE CHANDAN	6	6	6	18



Calculation for CO and PO attainment for all students

ASSIGNMENT NO.: 1 (Three Units I, II & III)

Roll NO.	Question No.	1	2	3	Total Marks
	Sub-questions				
	Max. Marks	10	10	10	
	COs satisfied	I,IV	II,III,IV	II,III,IV	
SCO20277	WADKAR MOHINI	5	6	6	17
SCO20278	WALHEKAR ABHINAV	4	5	6	15
	Target Value	5	5	5	
	No. of students above class average	72	73	70	
	% of students above the class average	92.31	93.59	89.74	
	CO Attainment Level from Assignment	3	3	3	



Calculation for CO and PO attainment for all students

ASSIGNMENT NO.: 2(Three Units IV, V & VI)

Roll NO.	Question No.	1	2	3	Total Marks
	Sub-questions				
	Max. Marks	10	10	10	
	COs satisfied	II,III,V	II,III,V	IV,VI	
SCO19101	ASFIYAN NAZIM ATTAR	7	8	8	23
SCO19102	BHELKE SHEREYA UMESH	9	6	8	23
SCO19103	BOBADE PRACHI SANTOSH	9	9	10	28
SCO19104	BORANE SHUBHAM SANDIP	6	7	8	21
SCO18105	CHAVAN RITAMBARA SHANK	8	9	10	27
SCO19106	DABADE SUYASH SUNIL	6	8	9	23
SCO19107	DHADAVE AJINKYA ROHIDAS	8	7	8	23
SCO19108	DHADVE PRAGATI UDDESH	8	7	8	23
SCO19109	GAIKWAD SHUBHANGI SURY	8	7	8	23
SCO18110	GAIKWAD SUSHIL PANDURAN	6	5	7	18
SCO19111	GARUD AKSHADA ANIL	6	5	6	17
SCO19112	GAWALI KARTIK RAKESH	6	6	7	19
SCO18113	GORAD AKSHADA RAJENDRA	7	5	6	8
SCO19114	ITHAPE SHREYA SANTOSH	4	6	7	6
SCO19115	JADHAV DHIRAJ ANNA	4	4	3	11
SCO19116	JAGDALE HARSHADA SHIVAJI	8	8	9	25
SCO19117	KALUSE SAHIL SANJAY	3	4	4	11
SCO18118	KAMBLE PRASHANT MOHAN	5	5	5	15
SCO19119	KANADE DATTA CHETAN	8	9	7	24
SCO19120	KHANDALE KIRAN PRAKASH	7	6	7	20
SCO19121	KHOPADE AJIT DATTATRAYA	6	6	7	19
SCO17122	KINHALE KAJAL MOHAN	5	5	6	16
SCO19123	KIRVE MAKRAND SHASHIKAN	6	5	4	15
SCO19124	KOLI GAURAV RAJENDRA	5	5	6	16
SCO19125	KORADE TUJAY KAMLAKAR	4	5	6	15
SCO19126	KSHIRSAGAR PRATHAMESH D	4	5	4	13
SCO19127	KUMBHAR RUTUJA DATTATR	8	7	8	23
SCO19128	LAWANDE SWAPNIL BHALCH	5	4	4	13
SCO19129	MAHANDAVE KUNAL DILIP	6	6	4	16
SCO19130	MUNDE ABHIJEET BHAGWAT	5	8	4	17
SCO19131	PADALE TEJAS CHANDRAKAN	5	6	5	16
SCO19132	PANDIT AKASH FAKIRCHAND	5	6	5	16
SCO18133	PATANKAR SAMARJEET SATI	5	6	4	15
SCO19134	RAUT POOJA SHARAD	5	6	7	18
SCO17135	SALUNKE SANGRAM MANOHA	5	4	5	14
SCO19136	SASTE SHUBHAM JALINDAR	6	7	5	18
SCO19137	SHEDGE POOJA SAMBHAJI	7	6	6	19
SCO19138	SHILIMKAR ASHWINI VIJAY	5	6	6	17



Calculation for CO and PO attainment for all students					
ASSIGNMENT NO.: 2(Three Units IV, V & VI)					
Roll NO.	Question No.	1	2	3	Total Marks
	Sub-questions				
	Max. Marks	10	10	10	
	COs satisfied	II,III,V	II,III,V	IV,VI	
SCO19139	SHINDE DIPAK NARESH	5	5	6	16
SCO19140	SHINDE SANDHYA PRABHAT	5	6	7	18
SCO19141	SHIVTARE HARSHADA SANJA	6	7	6	19
SCO18142	SONAWANE SHIVAM LAXMAN	6	7	5	18
SCO19143	SURYAWANSHI ANIKET SUNIL	6	5	6	17
SCO19144	SURYAWANSHI KOMAL BHANU	8	7	9	24
SCO19145	TODKAR OMKUMAR MURLIDAR	6	6	5	17
SCO19146	UMBARKAR KUNAL SUNIL	5	6	7	18
SCO19147	YELE PRATIKSHA JAGDISH	5	6	6	17
SCO19148	YEWALE YASH DATTATRAY	7	7	6	20
SCO20249	BAIT RUSHITA	5	6	7	18
SCO20250	BHINGARE ISHA	6	5	6	17
SCO20251	BHOSALE SHWETA	4	7	5	16
SCO20252	BORSARE SHUBHAM TARUDU	5	6	7	18
SCO20253	DERE SUNANDA	4	0	5	9
SCO20254	DEVGIRIKAR VIDYA	6	5	6	17
SCO20255	DIGHE SUPRIYA DATTATRAY	7	8	8	23
SCO20256	GAIKWAD POOJA BALKRUSHNA	8	7	9	24
SCO20257	GUJAR SAYALI SATISH	9	7	10	26
SCO20258	INGALE YASH	5	5	4	14
SCO20259	JADHAV HARSHAD	7	6	6	19
SCO20260	JADHAV SHWETA	6	7	6	19
SCO20261	JAGTAP GAURAVI	5	4	5	14
SCO20262	KACHI ADITI	8	8	9	25
SCO20263	KANADE OMKAR RAJESH	6	6	7	19
SCO20264	KHAIRE PRAJAKTA	6	5	4	15
SCO20265	KSHIRSAGAR AKASH	5	5	4	14
SCO20266	KSHIRSAGAR VAIBHAV	4	5	5	14
SCO20267	LAXMAN	7	8	9	24
SCO20268	MORE PREETI	5	6	5	16
SCO20269	DEVENDRA	6	5	6	17
SCO20270	PAWAR MAYUR RAVINDRA	5	6	5	16
SCO20271	PAWAR SNEHAL	6	7	4	17
SCO20272	POPHALE KISHORI	5	4	5	14
SCO20273	SHILIMKAR NAMRATA	6	7	6	19
SCO20274	SONWANE SONAL	6	5	4	15
SCO20275	DNYANOBA	6	5	5	16
SCO20276	THOMBARE CHANDAN	6	7	6	19



Calculation for CO and PO attainment for all students					
ASSIGNMENT NO.: 2(Three Units IV, V & VI)					
Roll NO.	Question No.	1	2	3	Total Marks
	Sub-questions				
	Max. Marks	10	10	10	
	COs satisfied	II,III,V	II,III,V	IV,VI	
SCO20277	WADKAR MOHINI	5	6	6	17
SCO20278	WALHEKAR ABHINAV	5	6	6	17
	Target Value	5	5	5	
	No. of students above class average	70	71	65	
	% of students above the class average	89.74	91.03	83.33	
	CO Attainment Level from	3	3	3	



Calculation for CO and PO attainment for all students

END TERM TEST (Unit No.: IV, V, VI)

ROLL NO.	Question No.	1	2	3	Total Marks
	Max. Marks	17	17	16	
	COs satisfied	II,III,V	II,III,V	IV,VI	
SCO19101	ASFIYAN NAZIM ATTAR	17	15	16	48
SCO19102	BHELKE SHEREYA UMESH	16	15	16	47
SCO19103	BOBADE PRACHI SANTOSH	12	14	14	40
SCO19104	BORANE SHUBHAM SANDIP	12	17	16	45
SCO18105	CHAVAN RITAMBARA SHANKAR	17	17	16	50
SCO19106	DABADE SUYASH SUNIL	17	17	16	50
SCO19107	DHADAVE AJINKYA ROHIDAS	15	17	16	48
SCO19108	DHADVE PRAGATI UDDESH	13	11	16	40
SCO19109	GAIKWAD SHUBHANGI SURYAKANT	10	14	14	38
SCO18110	GAIKWAD SUSHIL PANDURANG	14	17	16	47
SCO19111	GARUD AKSHADA ANIL	14	15	14	43
SCO19112	GAWALI KARTIK RAKESH	14	17	16	47
SCO18113	GORAD AKSHADA RAJENDRA	16	14	13	43
SCO19114	ITHAPE SHREYA SANTOSH	13	16	14	43
SCO19115	JADHAV DHIRAJ ANNA	15	15	10	40
SCO19116	JAGDALE HARSHADA SHIVAJI	17	15	11	43
SCO19117	KALUSE SAHIL SANJAY	12	16	15	43
SCO18118	KAMBLE PRASHANT MOHAN	14	9	15	38
SCO19119	KANADE DATTA CHETAN	15	17	16	48
SCO19120	KHANDALE KIRAN PRAKASH	17	15	16	48
SCO19121	KHOPADE AJIT DATTATRAYA	16	17	15	48
SCO17122	KINHALE KAJAL MOHAN	10	15	15	40
SCO19123	KIRVE MAKRAND SHASHIKANT	14	17	16	47
SCO19124	KOLI GAURAV RAJENDRA	15	12	15	42
SCO19125	KORADE TUJAY KAMLAKAR	12	17	16	45
SCO19126	KSHIRSAGAR PRATHAMESH DILIP	17	14	11	42
SCO19127	KUMBHAR RUTUJA DATTATRAYA	12	14	12	38
SCO19128	LAWANDE SWAPNIL BHALCHANDRA	12	16	15	43
SCO19129	MAHANDAVE KUNAL DILIP	14	15	14	43
SCO19130	MUNDE ABHIJEET BHAGWAT	12	17	16	45
SCO19131	PADALE TEJAS CHANDRAKANT	17	15	16	48
SCO19132	PANDIT AKASH FAKIRCHAND	17	12	14	43
SCO18133	PATANKAR SAMARJEET SATISH	14	16	15	45
SCO19134	RAUT POOJA SHARAD	12	17	16	45
SCO17135	SALUNKE SANGRAM MANOHAR	15	14	11	40
SCO19136	SASTE SHUBHAM JALINDAR	17	17	16	50
SCO19137	SHEDGE POOJA SAMBHAJI	12	11	10	33
SCO19138	SHILIMKAR ASHWINI VIJAY	17	16	15	48
SCO19139	SHINDE DIPAK NARESH	14	15	8	37
SCO19140	SHINDE SANDHYA PRABHAT	17	12	13	42
SCO19141	SHIVTARE HARSHADA SANJAY	14	13	16	43
SCO18142	SONAWANE SHIVAM LAXMAN	15	17	15	47
SCO19143	SURYAWANSHI ANIKET SUNIL	14	18	11	43
SCO19144	SURYAWANSHI KOMAL BHANUDAS	10	10	15	35
SCO19145	TODKAR OMKUMAR MURLIDHAR	14	17	16	47
SCO19146	UMBARKAR KUNAL SUNIL	12	15	16	43
SCO19147	YELE PRATIKSHA JAGDISH	14	14	12	40
SCO19148	YEWALE YASH DATTATRAY	17	14	16	47
SCO20249	BAIT RUSHITA	12	15	13	40
SCO20250	BHINGARE ISHA	13	12	13	38



Calculation for CO and PO attainment for all students					
END TERM TEST (Unit No.: IV, V, VI)					
ROLL NO.	Question No.	1	2	3	Total Marks
	Max. Marks	17	17	16	
	COs satisfied	II,III,V	II,III,V	IV,VI	
SCO20251	BHOSALE SHWETA	13	12	12	37
SCO20252	BORSARE SHUBHAM TARUDUTTA	17	12	13	42
SCO20253	DERE SUNANDA	12	17	13	42
SCO20254	DEVGIRIKAR VIDYA	14	17	16	47
SCO20255	DIGHE SUPRIYA DATTATRAY	13	13	16	42
SCO20256	GAIKWAD POOJA BALKRUSHNA	16	16	16	48
SCO20257	GUJAR SAYALI SATISH	14	10	13	37
SCO20258	INGALE YASH	14	13	16	43
SCO20259	JADHAV HARSHAD	17	16	12	45
SCO20260	JADHAV SHWETA	10	14	13	37
SCO20261	JAGTAP GAURAVI	13	14	16	43
SCO20262	KACHI ADITI	17	17	16	50
SCO20263	KANADE OMKAR RAJESH	15	12	10	37
SCO20264	KHAIRE PRAJAKTA	AB	AB	AB	AB
SCO20265	KSHIRSAGAR AKASH	17	16	14	47
SCO20266	KSHIRSAGAR VAIBHAV	17	11	12	40
SCO20267	MANDHARE RUPALI LAXMAN	17	16	12	45
SCO20268	MORE PREETI	14	17	16	47
SCO20269	PATIL VAISHNAVI DEVENDRA	17	14	16	47
SCO20270	PAWAR MAYUR RAVINDRA	17	14	16	47
SCO20271	PAWAR SNEHAL	17	17	14	48
SCO20272	POPHALE KISHORI	17	11	10	38
SCO20273	SHILIMKAR NAMRATA	17	15	16	48
SCO20274	SONWANE SONAL	14	15	14	43
SCO20275	DNYANOBA	14	17	16	47
SCO20276	THOMBARE CHANDAN	16	17	12	45
SCO20277	WADKAR MOHINI	12	14	11	37
SCO20278	WALHEKAR ABHINAV	17	14	16	47
Target Value		7	7	7	
No. of students above class average		77	77	77	
% of students above the class average		100.00	100.00	100.00	
CO Attainment Level from END Term Test		3	3	3	



Calculation for CO and PO attainment for all students

satisfied by ONLINE Exam	I, II, III, IV, V, VI
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satisfied by ONLINE END SEM Exam	I, II, III, IV, V, VI
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ONLINE INSEM Exam(30)		ONLINE END SEM	
Roll No.	Marks	Roll No.	Marks
SCO19101	29	SCO19101	57
SCO19102	28	SCO19102	46
SCO19103	24	SCO19103	49
SCO19104	27	SCO19104	45
SCO18105	30	SCO18105	50
SCO19106	30	SCO19106	56
SCO19107	29	SCO19107	50
SCO19108	24	SCO19108	50
SCO19109	23	SCO19109	43
SCO18110	28	SCO18110	59
SCO19111	26	SCO19111	69
SCO19112	28	SCO19112	56
SCO18113	26	SCO18113	57
SCO19114	26	SCO19114	63
SCO19115	24	SCO19115	62
SCO19116	26	SCO19116	53
SCO19117	26	SCO19117	57
SCO18118	23	SCO18118	55
SCO19119	29	SCO19119	45
SCO19120	29	SCO19120	60
SCO19121	29	SCO19121	64
SCO17122	24	SCO17122	50
SCO19123	28	SCO19123	53
SCO19124	25	SCO19124	63
SCO19125	27	SCO19125	29
SCO19126	25	SCO19126	48
SCO19127	23	SCO19127	64
SCO19128	26	SCO19128	53
SCO19129	26	SCO19129	64
SCO19130	27	SCO19130	59
SCO19131	29	SCO19131	57
SCO19132	26	SCO19132	66
SCO19133	29	SCO19133	49
SCO19134	27	SCO19134	63
SCO19135	24	SCO19135	32
SCO19136	30	SCO19136	64
SCO19137	20	SCO19137	57
SCO19138	29	SCO19138	48
SCO19139	22	SCO19139	57
SCO19140	25	SCO19140	64
SCO19141	26	SCO19141	46
SCO18142	28	SCO18142	62
SCO19143	26	SCO19143	55
SCO19144	21	SCO19144	43
SCO19145	28	SCO19145	60
SCO19146	26	SCO19146	62



Calculation for CO and PO attainment for all students			
ONLINE INSEM Exam(30)		ONLINE END SEM	
Roll No.	Marks	Roll No.	Marks
SCO19147	24	SCO19147	29
SCO19148	28	SCO19148	64
SCO20249	24	SCO20249	60
SCO20250	23	SCO20250	36
SCO20251	22	SCO20251	52
SCO20252	25	SCO20252	52
SCO20253	25	SCO20253	50
SCO20254	28	SCO20254	39
SCO20255	25	SCO20255	57
SCO20256	29	SCO20256	70
SCO20257	22	SCO20257	46
SCO20258	26	SCO20258	50
SCO20259	27	SCO20259	60
SCO20260	22	SCO20260	48
SCO20261	26	SCO20261	49
SCO20262	30	SCO20262	62
SCO20263	22	SCO20263	41
SCO20264	AB	SCO20264	42
SCO20265	28	SCO20265	49
SCO20266	24	SCO20266	48
SCO20267	27	SCO20267	52
SCO20268	28	SCO20268	55
SCO20269	28	SCO20269	53
SCO20270	28	SCO20270	63
SCO20271	29	SCO20271	55
SCO20272	23	SCO20272	50
SCO20273	29	SCO20273	70
SCO20274	26	SCO20274	53
SCO20275	28	SCO20275	34
SCO20276	27	SCO20276	56
SCO20277	22	SCO20277	53
SCO20278	28	SCO20278	43

Target Value	10	Target Value	28
No. of students above class	77	No. of students above	78
% of students above the class	98.72	% of students above	100.00
CO Attainment Level from In-Sem Exam	3	CO Attainment Level from End Sem Exam	3



Calculation for CO and PO attainment for all students

COs Satisfied	
Assessment Tool	Satisfied COs
Practical	I,II,III,IV,V,VI
Term Work	I,II,III,IV,V,VI

CO Attainment	
Satisfied COs	Attainment
I,II,III,IV,V,VI	3

CO Attainment	
Satisfied COs	Attainment
I,II,III,IV,V,VI	3

PRACTICAL(25)	
Roll No.	Marks
SCO19101	16
SCO19102	21
SCO19103	22
SCO19104	16
SCO18105	22
SCO19106	19
SCO19107	20
SCO19108	21
SCO19109	17
SCO18110	17
SCO19111	17
SCO19112	16
SCO18113	16
SCO19114	20
SCO19115	13
SCO19116	18
SCO19117	15
SCO18118	13
SCO19119	16
SCO19120	17
SCO19121	16
SCO17122	18
SCO19123	ABSENT
SCO19124	ABSENT
SCO19125	13
SCO19126	ABSENT
SCO19127	22
SCO19128	12
SCO19129	12
SCO19130	12
SCO19131	15
SCO19132	13
SCO19133	15
SCO19134	17
SCO19135	ABSENT
SCO19136	12
SCO19137	21
SCO19138	16
SCO19139	14
SCO19140	15
SCO19141	17
SCO18142	16
SCO19143	16
SCO19144	18
SCO19145	13
SCO19146	12
SCO19147	13
SCO19148	14
SCO20249	13
SCO20250	14

TERM WORK(25)	
Roll No.	Marks
SCO19101	16
SCO19102	21
SCO19103	22
SCO19104	16
SCO18105	22
SCO19106	19
SCO19107	20
SCO19108	21
SCO19109	17
SCO18110	17
SCO19111	17
SCO19112	16
SCO18113	16
SCO19114	20
SCO19115	13
SCO19116	18
SCO19117	15
SCO18118	13
SCO19119	16
SCO19120	17
SCO19121	16
SCO17122	18
SCO19123	13
SCO19124	12
SCO19125	13
SCO19126	12
SCO19127	22
SCO19128	12
SCO19129	12
SCO19130	12
SCO19131	15
SCO19132	13
SCO19133	15
SCO19134	17
SCO19135	12
SCO19136	12
SCO19137	21
SCO19138	16
SCO19139	14
SCO19140	15
SCO19141	17
SCO18142	16
SCO19143	16
SCO19144	18
SCO19145	13
SCO19146	12
SCO19147	13
SCO19148	14
SCO20249	13
SCO20250	14



Calculation for CO and PO attainment for all students

PRACTICAL(25)	
Roll No.	Marks
SCO20251	16
SCO20252	14
SCO20253	14
SCO20254	16
SCO20255	19
SCO20256	24
SCO20257	19
SCO20258	ABSENT
SCO20259	13
SCO20260	16
SCO20261	12
SCO20262	24
SCO20263	16
SCO20264	ABSENT
SCO20265	ABSENT
SCO20266	ABSENT
SCO20267	17
SCO20268	18
SCO20269	16
SCO20270	17
SCO20271	13
SCO20272	16
SCO20273	18
SCO20274	12
SCO20275	16
SCO20276	14
SCO20277	23
SCO20278	17

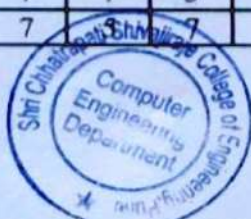
TERM WORK(25)	
Roll No.	Marks
SCO20251	16
SCO20252	14
SCO20253	14
SCO20254	16
SCO20255	19
SCO20256	24
SCO20257	19
SCO20258	12
SCO20259	13
SCO20260	16
SCO20261	12
SCO20262	24
SCO20263	16
SCO20264	12
SCO20265	14
SCO20266	12
SCO20267	17
SCO20268	18
SCO20269	16
SCO20270	17
SCO20271	13
SCO20272	16
SCO20273	18
SCO20274	12
SCO20275	16
SCO20276	14
SCO20277	23
SCO20278	17

Target Value	10	Target Value	10
No. of students above class average	70	No. of students above class average	78
% of students above the class average	100.00	% of students above the class	100.00

CO Attainment Level from practical Work	3	CO Attainment Level from Term	3
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Calculation for CO and PO attainment for all students												
Expt. No.	1	2	3	4	5	6	7	8	9	10	11	12
COs satisfied	I,II	II,IV	III,IV	IV	III	I,II,VI	I,II	II,IV	III,IV	IV	III,V	I,II,VI
Roll. NO.												
SCO19101	8	9	8	8	9	7	8	8	7	8	9	7
SCO19102	6	7	8	6	8	7	8	7	8	8	8	9
SCO19103	8	9	8	8	9	8	9	8	9	8	8	9
SCO19104	7	7	7	6	8	6	7	6	6	7	6	6
SCO18105	10	9	6	7	9	10	8	6	9	8	10	9
SCO19106	6	7	7	8	7	7	8	6	8	8	7	6
SCO19107	5	6	8	7	7	8	7	7	8	5	7	6
SCO19108	9	8	9	9	9	9	9	9	9	8	8	9
SCO19109	9	9	7	8	9	8	8	8	7	8	9	8
SCO18110	6	7	6	6	6	5	6	5	6	6	6	5
SCO19111	6	6	8	6	7	7	6	7	6	8	7	9
SCO19112	7	6	7	7	6	8	6	7	7	8	8	6
SCO18113	6	5	6	7	7	7	7	6	7	6	7	8
SCO19114	9	8	6	7	8	7	8	8	9	8	8	9
SCO19115	5	6	6	6	5	5	6	6	7	4	5	5
SCO19116	9	9	7	9	8	8	7	7	8	8	9	7
SCO19117	6	8	6	6	6	5	6	6	6	7	7	7
SCO18118	6	7	6	6	6	7	6	6	6	5	6	6
SCO19119	6	7	7	6	8	7	6	7	6	5	6	5
SCO19120	6	7	6	6	8	7	6	8	6	6	7	6
SCO19121	7	6	6	7	7	8	8	8	6	6	6	6
SCO17122	6	7	7	8	6	7	6	6	6	7	6	6
SCO19123	7	6	6	5	6	5	6	5	5	5	5	6
SCO19124	7	6	5	5	5	4	5	5	4	5	4	5
SCO19125	6	6	5	5	5	6	5	6	5	5	7	6
SCO19126	5	6	4	4	5	4	5	5	5	4	5	6
SCO19127	9	9	8	8	9	10	10	8	9	10	8	8
SCO19128	6	6	5	4	5	4	5	5	4	5	4	4
SCO19129	5	4	5	5	5	6	5	5	6	5	5	5
SCO19130	6	5	5	6	5	5	5	6	5	6	6	9
SCO19131	7	6	6	8	7	8	6	7	8	9	6	8
SCO19132	6	5	5	5	5	6	6	6	5	4	5	5
SCO18133	6	8	6	4	6	5	6	6	6	6	7	5
SCO19134	6	7	6	7	6	6	5	6	5	6	5	6
SCO17135	6	6	5	4	5	5	5	5	5	4	5	6
SCO19136	5	5	5	4	5	6	6	6	5	4	5	5
SCO19137	10	8	9	6	10	7	8	8	9	9	9	9
SCO19138	7	8	7	6	6	8	7	6	6	7	7	7
SCO19139	7	5	7	6	5	6	6	6	5	7	6	7
SCO19140	7	5	5	6	6	6	7	5	6	7	7	6
SCO19141	7	6	8	6	7	8	7	6	6	7	5	7
SCO18142	6	7	5	7	7	6	7	6	7	6	7	8
SCO19143	7	8	7	6	8	7	6	7	6	7	7	7
SCO19144	8	8	6	7	6	6	7	6	7	9	7	7
SCO19145	7	5	6	7	8	6	8	6	6	8	4	6
SCO19146	5	7	5	5	5	7	5	5	5	5	5	6
SCO19147	5	6	6	7	7	5	6	4	6	5	6	6
SCO19148	5	7	6	7	7	7	5	7	5	8	6	6



Calculation for CO and PO attainment for all students												
Expt. No.	1	2	3	4	5	6	7	8	9	10	11	12
COs satisfied	I,II	II,IV	III,IV	IV	III	I,II,VI	I,II	II,IV	III,IV	IV	III,V	I,II,VI
Roll. NO.												
SCO20249	7	5	6	7	8	6	8	6	6	8	4	6
SCO20250	7	5	7	6	7	5	5	6	6	6	5	6
SCO20251	8	7	9	7	6	6	7	6	7	6	9	6
SCO20252	8	9	7	5	6	7	6	5	7	6	7	8
SCO20253	5	6	7	6	5	7	6	9	8	5	7	6
SCO20254	5	6	6	5	6	7	5	7	6	5	8	8
SCO20255	10	6	8	10	6	7	7	10	8	8	10	9
SCO20256	10	9	10	9	9	10	9	9	10	10	10	8
SCO20257	7	8	6	8	6	8	6	9	8	9	8	8
SCO20258	5	7	5	5	5	7	5	5	5	5	5	6
SCO20259	7	6	6	7	8	6	8	7	7	6	7	7
SCO20260	7	6	6	7	8	6	8	7	7	7	8	7
SCO20261	6	6	7	5	7	7	7	6	7	7	7	6
SCO20262	5	5	6	5	4	6	5	4	5	5	4	6
SCO20263	10	9	8	9	10	10	9	10	9	10	10	9
SCO20264	10	9	8	9	10	10	9	10	9	10	10	9
SCO20265	6	5	6	7	7	5	6	7	6	7	6	6
SCO20266	6	5	6	7	7	5	6	7	6	7	6	6
SCO20267	5	6	5	5	5	6	5	5	5	5	5	6
SCO20268	6	7	7	7	7	6	6	6	7	7	6	6
SCO20269	6	7	7	7	7	6	6	7	5	5	5	6
SCO20270	5	7	5	5	5	7	5	5	5	5	5	6
SCO20271	6	8	8	9	6	9	7	8	6	8	8	7
SCO20272	6	6	7	6	7	6	6	7	5	6	5	6
SCO20273	6	6	7	6	7	6	6	7	5	6	5	6
SCO20274	7	6	6	6	6	6	4	5	6	6	5	5
SCO20275	7	6	7	6	6	6	6	4	5	6	6	5
SCO20276	7	6	6	6	7	7	6	7	7	5	5	5
SCO20277	10	9	9	8	10	9	9	9	9	10	9	10
SCO20278	10	9	9	8	10	9	9	9	9	10	9	10
SCO20278	6	5	6	6	7	6	6	8	7	6	6	5
Target Value	6	6	6	6	6	6	6	6	6	6	6	6
No. of students above class	64	65	63	60	60	65	59	60	58	54	50	64
% of students above the class average	82.05	83.33	80.77	76.92	76.92	83.33	75.64	76.92	74.36	69.23	64.10	82.05
CO	3	3	3	2	2	3	2	2	2	1	1	3



CO ATTAINMENT

		COs	I	II	III	IV	V	VI
		Assessment Tools						
1	Internal Assessment	Assignment I	3	3	3	3	3	3
		Assignment II	3	3	3	3	3	3
3		Lab Work	2.7	3.2	2	2	1	1
4		End-Term Exam	3	3	3	3	3	3
		Total Internal	3	3.1	2.8	2.8	2.5	2.5
1	External Assessment	Oral	0	0	0	0	0	0
2		Term Work	3	3	3	3	3	3
3		Practical	3	3	3	3	3	3
4		Online Exam	3	3	3	0	0	0
5		End Sem Exam	0	0	0	3	3	3
		Total External	2.25	2.25	2.25	2.25	2.25	2.25
		Final CO Attainment	2.5	2.6	2.5	2.5	2.4	2.4

PO ATTAINMENT

POs	CO I	CO II	CO III	CO IV	CO V	CO VI	Average
a	2.5	2.6	2.5	2.5	2.4	2.4	2.5
b		2.6	2.5	2.5			2.6
c							
d	2.5		2.5	2.5	2.4	2.4	2.5
e							
f							
g							
h							
i							
j							
k	2.5	2.6			2.4	2.4	2.5
l							

CO Attainment = $0.7 * (\text{Summation of CO attainment thr' EXTL. Assessment tools}) + 0.3 * (\text{Summation of CO attainment thr' INTL. Assessment tools})$

Note: 1). 70 % weightage is given to external assessment tools and 30 % weightage is given to internal assessment tools, 2). Internal and external tools may vary as per the course



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