II B.Tech. I Semester Regular Examinations March 2021
Data Structures through Python
(Computer Science and Engineering)

Max. Marks: 70　　　　　　　　　　　　　　　　　　　　　　Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)
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			Marks	CO	Blooms Level

UNIT–I

			Marks	CO	Blooms Level
1.	a)	Explain the following methods with one example program? i.__init__()　ii. __del__()　iii. __setitem__()　iv.__getitem__()	7M	CO1	L1
	b)	Write a program to call a class method from another method of the same class?	7M	CO1	L1

OR

2.	a)	What is use of **super()** function in inheritance**.** Write a program to Demonstrate the call of super () from __init__ () of a base class.	6M	CO1	L1
	b)	Explain about abstract classes and interfaces in python with suitable programs?	8M	CO1	L2

UNIT–II

3.	a)	What is Operator Overloading? Write a python program that overrides __getitem__() and __setitem__() methods in a class.	7M	CO2	L1,L2
	b)	What is exception? Write a python program that represent the use of try, except and finally block all together?	7M	CO2	L1

OR

4.	a)	What is assertion? Explain how it can be implemented in python?	7M	CO2	L1,L2
	b)	Define array and explain the Array Abstract Data Type in python?	7M	CO2	L1,L2

UNIT–III

5.	a)	What is Set ADT? Explain how it is implemented using Python List?	7M	CO3	L1,L2
	b)	Explain the need of Amortized Analysis. Describe the methods to perform Amortized Analysis?	7M	CO3	L2

OR

				CO3	
6.		Explain the following circular linked list operations with suitable example. (i) inserting (ii) Traversing (iii) Searching (iv) Removing	14M	CO3	L2

UNIT–IV

7.	a)	Write a python program to find a factorial of a number using recursion and draw the recursive call tree to find factorial of 5?	8M	CO4	L1,L3
	b)	Write a short notes on recursive applications?	6M	CO4	L1

OR

8.	a)	Describe the following i. Hashing. ii. Linear probing iii. Searching the Hash table	6M	CO4	L2
	a)	Apply Quick Sort on the following elements. (10, 23, 51, 18, 4, 31, 5, 13)	8M	CO4	L3

UNIT–V

9.	a)	Explain in detail about tree structured data structure?	7M	CO5	L2
	b)	Sort the following list of elements using Heap sort method. (8, 50, 17, 30, 12, 4, 22, 28)	7M	CO5	L3

OR

10.	a)	Explain any three Traversal methods on the Binary Tree.	7M	CO5	L2
	b)	Write Short notes on (i) heap sort (ii) Binary Search Tree (iii) AVL tree	7M	CO5	L1

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II B.Tech. I Semester Regular Examinations March 2021
Database Management Systems
(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Discuss about DML and DDL.	7M	CO1	L2
	b)	Differentiate Two and Three-Tier architectures.	7M	CO1	L2
		OR			
2.	a)	Discuss about Storage Manager and Query Processor.	7M	CO1	L2
	b)	List out the functions of Database Administrator.	7M	CO1	L1
		UNIT–II			
3.	a)	ER Model is most relevant to Database Design, justify.	7M	CO2	L5
	b)	Discuss about Entities, Attributes and Entity Sets.	7M	CO2	L2
		OR			
4.	a)	Describe the Key Constraints for Ternary relationships.	7M	CO2	L2
	b)	Discuss about Integrity constraints over Relations.	7M	CO2	L2
		UNIT–III			
5.	a)	Summarize the relationship between Triggers and Active databases.	7M	CO3	L2
	b)	Illustrate and explain about Aggregate functions.	7M	CO3	L4,L2
		OR			
6.	a)	List and explain any 4 Data Manipulation commands.	7M	CO3	L1
	b)	Describe about Cursors.	7M	CO3	L2
		UNIT–IV			
7.		3NF and BCNF are important Normal Forms for a database design, justify.	14M	CO4	L5
		OR			
8.	a)	Discuss the Multivalued Dependencies with an example.	7M	CO4	L2
	b)	List out and explain the problems caused by Redundancy.	7M	CO4	L1
		UNIT–V			
9.	a)	Discuss about Serializability in concurrent execution of transaction.	7M	CO5	L2
	b)	Illustrate the Strict Two-Phase Locking concurrency control protocol.	7M	CO5	L4
		OR			
10.	a)	Discuss about the Performance of Locking.	7M	CO5	L2
	b)	Write short notes on ACID properties.	7M	CO5	L2

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R-19

Code: 19AC33T

II B.Tech. I Semester Regular Examinations March 2021

Discrete Mathematics

(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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			Marks	CO	Blooms Level

UNIT–I

			Marks	CO	Blooms Level
1.	a)	Find the conjunctive normal form of (q p) ∧ (~ p q)	6M	CO1	L2
	b)	Prove that , for any propositions p and q , the compound propositions p ∨ q and (p ∨ q) ∧ (~p ∨ ~q) are logically equivalent	8M	CO1	L3

OR

			Marks	CO	Blooms Level
2.	a)	Verify the validity of the following			
		Every square is a rectangle			
		Every rectangle is a parallelogram			
		∴ Every square is parallelogram	6M	CO1	L3
	b)	What is inconsistency of premises? Show that following set of premises is consistent. P→Q , P → R , Q → ~R , P	8M	CO1	L3

UNIT–II

			Marks	CO	Blooms Level
3.	a)	Define binary relation? Write properties of binary relation	8M	CO2	L2
	b)	Define an Equivalence Relations with the help of Example.	6M	CO2	L2

OR

			Marks	CO	Blooms Level
4.		Define function? Explain different types of functions with neat Diagrams.	14M	CO2	L2

UNIT–III

			Marks	CO	Blooms Level
5.	a)	Define Algebraic Systems and explain the Properties.	6M	CO3	L2
	b)	Explain the terms Homomorphism and Isomorphism with example.	8M	CO3	L3

OR

			Marks	CO	Blooms Level
6.	a)	How many committees of five with a given Chairperson can be selected from 12 Students?	8M	CO3	L4
	b)	Write short notes on Principles of Inclusion and Exclusion.	6M	CO3	L4

UNIT–IV

			Marks	CO	Blooms Level
7.	a)	Find the sequences generated by the following functions:(3 + x)^3	7M	CO4	L2
	b)	Find a generating functions for each of the following sequences: 1,1,0,1,1,1,…	7M	CO4	L2

OR

			Marks	CO	Blooms Level
8.		Solve the recurrence relation $a_n + a_{n-1} - 6a_{n-2}=0$ for n 2 given that a_0= -1 and a_1=8	14M	CO4	L3

UNIT–V

			Marks	CO	Blooms Level
9.	a)	Define a Graph and Explain the different methods for representing of a Graph.	8M	CO5	L2
	b)	Define the term Planner Graph and Eulers's Formula	6M	CO5	L2

OR

			Marks	CO	Blooms Level
10.	a)	What is Spanning Tree? Illustrate with one example.	10M	CO5	L6
	b)	Explain the term Four-Color Problem	4M	CO5	L3

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Code: 19A533T

ll B.Tech. I Semester Regular Examinations March 2021

Digital Logic Design and Computer Organization

(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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		Marks	CO	Blooms Level

UNIT–I

1.	a)	Explain in detail about BUS structure and how to measure the performance.	8M	CO1	L1,L2
	b)	Convert the Following Numbers			
		i) $(10101101011)_2$ into $(?)_{10}$ ii) $(5F37D)_{16}$ into $(?)_8$			
		iii) $(4976)_{10}$ into $(?)_2$	6M	CO1	L3

OR

2.	a)	Describe the different types of Computers	6M	CO1	L1
	b)	Solve the subtraction with the following unsigned binary numbers by taking the 2's complement of the subtrahend			
		i)11010-10000 ii) 11010-1101			
		iii) 100-110000 iv) 1010100-1010100	8M	CO1	L3

UNIT–II

3.	a)	Simplify the Boolean FunctionF(W,X,Y,Z)= m(0,2,5,7,8,10,13,15) using K-Map	7M	CO2	L3
	b)	Illustrate the Logic circuit of S-R Flip-flop and its Excitation Table	7M	CO2	L4

OR

4.	a)	Describe different types of shift registers and its functionality	7M	CO2	L2
	b)	Construct Full Adder using 3*8 Decoder	7M	CO2	L6

UNIT–III

5.		Describe the Procedure and hardware implementation of the Booths Multiplication Algorithm? Explain with Example	14M	CO3	L2

OR

6.	a)	Discuss about different types of addressing modes.	7M	CO3	L2
	b)	Write an algorithm procedure for Floating Point Numbers addition and subtraction.	7M	CO3	L4

UNIT–IV

7.	a)	Comparision between Hardwired Control and Micro programmed control	7M	CO4	L5
	b)	Demonstrate different types of Cache Memory Mapping techniques	7M	CO4	L3

OR

8.	a)	Construct RAM and ROM Chips	7M	CO4	L6
	b)	Discuss about Secondary Storage Memory	7M	CO4	L2

UNIT–V

9.		What is DMA Controller? Explain DMA Transfer with neat Diagram	14M	CO5	L2

OR

10.	a)	What is meant by interrupts and explain different types of interrupts in detail.	7M	CO5	L2
	b)	How to Enable and Disable Interrupts?	7M	CO5	L3

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Code: 19AC34T

II B.Tech. I Semester Regular Examinations March 2021
Life Sciences for Engineers
(Common to CE, ME & CSE)

Max. Marks: 70   Time: 3 Hours
Answer *any five full* questions by choosing one question from each unit (5 x 14 = 70 Marks)
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			Marks	CO	Blooms Level

UNIT–I

1.	a)	What is meant by classification and explain about living organisms based on their cellular life.	7M	1	2
	b)	Differentiate between prokaryotes and eukaryotes.	7M	1	4

OR

2.	a)	What is molecular taxonomy and how the organisms classify?	7M	1	2
	b)	Explain about biological organisms comparing with manmade systems.	7M	1	2

UNIT–II

3.		Explain the structure and functions of proteins.	14M	2	1

OR

4.	a)	Describe briefly about antibodies.	7M	2	2
	b)	Explain the process of fermentation and its industrial applications.	7M	2	2

UNIT–III

5.		Explain the reactions that occur in glycolysis.	14M	3	2

OR

6.	a)	What is synapse and describe about neuromuscular junctions?	7M	3	2
	b)	Explain about electron transport system.	7M	3	2

UNIT–IV

7.	a)	What are the characteristics of Mendal's laws and explain with suitable examples?	7M	4	2
	b)	Write the differences between mitosis and meiosis?	7M	4	4

OR

8.	a)	Describe briefly about eukaryotic DNA replication.	7M	4	2
	b)	Briefly explain about central dogma of molecular biology.	7M	4	2

UNIT–V

9.		Describe briefly about recombinant vaccines.	14M	5	2

OR

10.	a)	Write short notes on transgenic microbes.	7M	5	1
	b)	Explain the salient features of animal cloning.	7M	5	3

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R-19

Code: 19A534T

II B.Tech. I Semester Regular Examinations March 2021
Web Programming
(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours
Answer any *five full* questions by choosing one question from each unit (5 x 14 = 70 Marks)
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			Marks	CO	Blooms Level

UNIT–I

			Marks	CO	Blooms Level
1.	a)	List and explain HTML text formatting tags.	7M	1	2

b) Create the following unordered list with HTML list tags.
   My typical dinner shopping list:
   - Milk
   - Donuts
   - Cookies
       o Chocolate
       o Sugar
       o Peanut Butter
   • Pepto Bismol   7M   1   3

OR

2.	a)	List and explain the major inline elements of HTML with suitable examples.	7M	1	2
	b)	Differentiate heading and paragraph with all available HTML tags.	7M	1	5

UNIT–II

3.	a)	What is the syntax for embedding video in a webpage? List and explain video attributes with suitable example.	7M	2	2
	b)	Develop a class time table for II. B.Tech. CSE I Semester with basic HTML table tags.	7M	2	3

OR

4.   Create the following registration form with html form tags.

Registration form

User personal information
Enter your full name
[   ]
Enter your email
[   ]
Enter your password
[   ]
confirm your password
[   ]

Enter your gender
  ○ Male
  ○ Female
  ○ others

Enter your Address:
[   ]
[sign-up]

Bottom of Form   14M   2   6

UNIT–III				
5.	a)	What are the XML namespaces and how are they declared?	7M	3	2
	b)	Collect the student's details such as, register number, name, subject and marks using forms and generate a DTD for this XML document. Display the collected information in the descending order of marks. Write XML source code for the above.	7M	3	3

OR

6.		What are different ways to add CSS to HTML documents? Explain with its syntax.	14M	3	2

UNIT–IV

7.	a)	What are different Control Statements in java Script? Explain with their syntax.	7M	4	2
	b)	Write a java script to print whether the given number is palindrome or not.	7M	4	5

OR

8.	a)	Write a java script to validate the form having username and password fields followed by submit button.	7M	4	5
	b)	What is Document Object Model? List and explain its methods.	7M	4	2

UNIT–V

9.	a)	Justify the statement with suitable example: "jQuery means "write less do more"".	7M	5	5
	b)	Explain jQuery Document/Window Events with suitable example.	7M	5	2

OR

10.	a)	What is jQuery ajax() method? List few of its parameters.	7M	5	2
	b)	jQuery User Interface? List its features.	7M	5	2

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