Hall Ticket Number : | | | | | | | | | |

Marks

UNIT–I

1. a) Using Indirect method proof derive $P \rightarrow \sim S$ from set of premises $P \rightarrow (Q \lor R)$, $Q \rightarrow \sim P$, $S \rightarrow \sim R$ and P.   10M

   b) Find DNF for the following formula. $\sim (P \rightarrow (Q \land R))$ 4M

OR

2. a) Define Statement and Explain various Connectives with Example.   7M

   b) Construct truth table for the following formula $(P \land Q) \lor (\sim P \land \sim Q) \lor (P \land \sim Q)$ 7M

UNIT–II

3. a) A={1,2,3,4,5,6,7,8,9,10,11,12}. R is defined by {(x,y) R iff (x-y) is a multiple of 5}.Find out partition of A induced by R.   10M

   b) Explain Bijective function with example.   4M

OR

4. a) Explain partition and covering of a set.   7M

   b) Let X={1,2,3,4,5} and R={<x,y>|x>y}.Draw the graph of R and also its matrix.   7M

UNIT–III

5. a) How many numbers can be formed using the digits 1, 3, 4, 5, 6, 8 and 9 if no repetitions are allowed?   7M

   b) Find the Coefficient of $x^9 y^3$ in the expansion of $(2x-3y)^{12}$ 7M

OR

6. a) Explain pigeonhole principle with example.   7M

   b) A certain question paper contains 2 parts A and B each containing 4 questions. How many different ways a student can answer 5 questions by selecting at least 2 questions from each part?   7M

UNIT–IV

7. a) Solve the recurrence relation $a_n = 2(a_{n-1} - a_{n-2})$ for n>=2 with $a_0 = 1, a_1 = 2$ 6M

   b) Find the coefficient of x^{20} in $(x^3 + x^4 + x^5 + \ldots\ldots)^5$ 8M

OR

8. Solve the recurrence relation $a_{n+2} - 10a_{n+1} + 21a_n = 3n^2 - 2$, for n>=3   14M

UNIT–V

9. a) Explain DFS with example.   6M

   b) What is bipartite graph? Explain with an example.   8M

OR

10. a) Define the following terms with suitable examples.
Euler Path   ii) Euler Circuit   iii) Hamiltonian cycle   iv) Multigraph   8M

   b) Define a graph and explain various representations of graph with examples.   6M

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II B.Tech. I Semester Supplementary Examinations Nov/Dec 2022
Datastructures through Python
(Computer Science and Engineering)

Max. Marks: 70　　　　　　　　　　　　　　　　　　Time: 3 Hours
Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)
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			Marks	CO	Blooms Level
	UNIT–I				
1. a)	What is encapsulation? Explain with suitable Example?		7M	1	1,2
b)	Discuss the garbage collection in python with suitable example.		7M	1	2
	OR				
2. a)	Discuss the following methods with suitable syntax and example.				
	i) hasattr( ) ii) setattr( ) iii) getattr( ) iv) delattr( )		12M	1	2
b)	What is subclassing?		2M	1	1
	UNIT–II				
3.	Explain the occurrences of the following standard exceptions with suitable examples. i) Import Error ii) Index Error iii) Name Error iv) Type Error v) Value Error		14M	2	2
	OR				
4. a)	Write a python program to demonstrate try, except and finally blocks.		7M	2	6
b)	Demonstrate multiple exceptions in single block with suitable program.		7M	2	3
	UNIT–III				
5. a)	What is SET ADT? Explain the Operations of SET ADT.		7M	3	1,2
b)	Define Amortized Analysis. Evaluate the complexity of Python List?		7M	3	1,4
	OR				
6.	Explain the following circular linked list operations with suitable example. (i) inserting (ii) Traversing (iii) Searching (iv) Removing		14M	3	2
	UNIT–IV				
7. a)	Describe Hashing. Explain Linear Probing and Separate Chaining methods with suitable example.		8M	4	2
b)	Write a short notes on recursive applications?		6M	4	1
	OR				
8. a)	Apply Merge Sort on the following elements. (10, 23, 51, 18, 4, 31, 5, 13)		7M	4	3
b)	Write a Python Program to implement Merge sort.		7M	4	6
	UNIT–V				
9. a)	Build an AVL tree with the following values: {15, 20, 24, 10, 13, 7, 30, 36, 25, 42, 29}		8M	5	6
b)	Discuss briefly about AVL Tree.		6M	5	2
	OR				
10. a)	Define Binary Tree.		4M	5	1
b)	Explain the following Binary search tree Operations with suitable example. i) Insertion ii) Deletion iii).Searching		10M	5	2

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Code: 19AC34T

R-19

II B.Tech. I Semester Supplementary Examinations Nov/Dec 2022
Life Sciences for Engineers
(Common to All Branches)

Max. Marks: 70   Time: 3 Hours
Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)
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		Marks	CO	Blooms Level

UNIT–I

1. Describe the types of cells and write the differences between prokaryotes and eukaryotes cells? — 14M — 1 — 2

OR

2. a) Explain the differences between Plant cell and Animal cell? — 7M — 1 — 2

b) Describe is mitochondrion? Write their structure and important functions and draw the labelled diagram? — 7M — 1 — 2

UNIT–II

3. Define the proteins? Write the structure and functions of proteins? — 14M — 2 — 1

OR

4. Define the antibodies and Write the types and functions of antibodies? — 14M — 2 — 1

UNIT–III

5. Explain the Glycolysis pathway and importance? — 14M — 3 — 2

OR

6. Discuss the Clavin cycle/C_3 cycle? — 14M — 3 — 2

UNIT–IV

7. a) Explain the three laws of inheritance with examples? — 7M — 3 — 2

b) Briefly describe the transcription and translation? — 7M — 3 — 2

OR

8. Explain the Process of DNA Replication in prokaryotic and eukaryotic animals? — 14M — 4 — 2

UNIT–V

9. a) Write short notes on restriction enzymes? — 7M — 5 — 1

b) Explain the Importance of DNA Cloning? — 7M — 5 — 2

OR

10. a) Explain the applications of transgenic animals? — 7M — 5 — 2

b) Discuss the tools of Recombinant DNA Technology? — 7M — 5 — 2

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Code: 19A534T

II B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Web Programming

(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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Marks

UNIT–I

| 1. | a) | Write any Five Text Formatting elements in HTML. | 7M |
| | b) | Explain the structure of web document with example program | 7M |

OR

| 2. | a) | Explain block-level elements in HTML with example | 7M |
| | b) | List the new features in HTML5 comparing with earlier versions. | 7M |

UNIT–II

| 3. | a) | What is focus in HTML form? | 7M |
| | b) | Describe basic table element and attributes with example | 7M |

OR

| 4. | a) | Write any five image tag attributes. | 7M |
| | b) | What is a nested table in HTML explain giving an example? | 7M |

UNIT–III

| 5. | | With an example, describe CSS style properties associated with text formatting. | 14M |

OR

| 6. | a) | How External DTD works? Explain with example program | 7M |
| | b) | How to set Multiple Backgrounds using CSS | 7M |

UNIT–IV

| 7. | a) | Discuss about different types of data types supported by java script. | 7M |
| | b) | Write a java script code to handle onsubmit and onload events. | 7M |

OR

| 8. | a) | How do you combine two variables in JavaScript? Explain with example program. | 7M |
| | b) | Write a java script to find sum of first n even numbers and display the result. Read the value of n from the user. | 7M |

UNIT–V

| 9. | a) | What is difference between JavaScript and jQuery? | 7M |
| | b) | Is jQuery front end or backend? Explain with example. | 7M |

OR

| 10. | | Name any five jQuery Events. Illustrate the usage of those events with an example. | 14M |

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Code: 19A531T

II B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Database Management Systems

(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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Marks

UNIT–I

1. a) What are the advantages of DBMS? Explain.   7M
   b) Explain the advantages of using a query language instead of custom programs to process data.   7M

OR

2. a) Explain the differences between File Systems and DBMS   4M
   b) Explain the different roles of database administrators, application programmers, and end users of a database. Who needs to know the most about database systems?   10M

UNIT–II

3. a) Distinguish strong entity set with weak entity set? Draw an ER diagram to illustrate weak entity set?   8M
   b) Explain the distinctions among the terms primary key, candidate key, and super key.   6M

OR

4. a) Draw ER diagram for the airport database incorporating all the ER notations with explanation.   8M
   b) Write Merits and Demerits of ER Modeling.   6M

UNIT–III

5. a) Briefly discuss about SQL join operators with examples.   7M
   b) Briefly discuss about data manipulation commands in SQL   7M

OR

6. a) Compare the stored procedures with stored functions?   7M
   b) What are Correlated Queries how they are applied in SQL?   7M

UNIT–IV

7. a) What is redundancy? Discuss the problems that may be caused by the redundancy with an example.   7M
   b) Define normalization. Explain second normal form with a suitable example.   7M

OR

8. a) Define Boyce-Codd normal form (BCNF). How does it differ from 3NF? Why is it considered a strong form of 3NF?   7M
   b) Give an example of a relation schema R and a set of dependencies such that R is in BCNF but is not in 4NF.   7M

UNIT–V

9. a) What is locking and explain different types of locks?   7M
   b) What is indexing in data storage and how it is used in organization of data?   7M

OR

10. a) Illustrate concurrent execution of transaction with examples?   6M
    b) Discuss briefly about the dynamic index structure with one example?   8M

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II B.Tech. I Semester Supplementary Examinations Nov/Dec 2022
Digital Logic Design and Computer Organization
(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	BL

UNIT–I

| 1. | a) | Which parts of the computers influence the performance of a computer system? Explain how while detailing the term "memory bus bottleneck"? | 7M | 1 | 2 |
| | b) | Distinguish between multiprocessor systems and multi computers? | 7M | 1 | 2 |

OR

| 2. | a) | Explain the procedure to represent a decimal number in any base system? | 7M | 1 | 2 |
| | b) | Represent Hexadecimal number F0AB in binary, octal, decimal and simultaneously perform the reverse operation and verifying result? | 7M | 1 | 2 |

UNIT–II

| 3. | a) | Explain about integrated circuits? | 7M | 2 | 2 |
| | b) | Outline different Combinational circuits present in the logic design process? | 7M | 2 | 4 |

OR

| 4. | a) | Simply the Boolean function $F(W,X,Y,Z)= (1,3,7,11,15)$ Which has the don't care conditions $d(W,X,Y,Z)= (0,2,5)$ using K-map? | 7M | 2 | 2 |
| | b) | Explain about digital logic gates with truth tables and graphics symbols? | 7M | 2 | 2 |

UNIT–III

| 5. | a) | Perform the subtraction with the following unsigned binary numbers by taking the 10's complement of the subtrahend?
 i) 11010 – 10000   ii). 11010 – 1101   iii). 100 - 110000 | 6M | 3 | 5 |
| | b) | Describe the general format of instructions with relevant examples? | 8M | 3 | 2 |

OR

| 6. | | Explain hardware implementation for signed magnitude data addition & subtraction? | 14M | 3 | 2 |

UNIT–IV

| 7. | a) | Elaborate about the micro instruction-sequencing organization? | 7M | 4 | 2 |
| | b) | Explain Hardwired Control Organization? | 7M | 4 | 2 |

OR

| 8. | a) | How does a processor execute a register transfer instruction? Consider a single bus organization of the data path inside a processor? | 7M | 4 | 3 |
| | b) | Explain about Register Transfer Language? | 7M | 4 | 2 |

UNIT–V

| 9. | | What is DMA Transfer? Explain the use of DMA controllers in a computer system and illustrate distributed arbitration with the necessary diagram? | 14M | 5 | 4 |

OR

| 10. | a) | Why do we use DMA-based I/O? Explain? | 7M | 5 | 2 |
| | b) | Given that different devices are likely to require different interrupt-service routines, how can the processor obtain the starting address of the appropriate routine in each case? | 7M | 5 | 2 |

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