Hall Ticket Number :										

R-20

Code: 20AC35T

II B.Tech. I Semester Supplementary Examinations June 2024

Management Science

(Common CSE, AI&DS, AI&ML, CSE(AI) and CSE(DS))

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two marks.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

1. Answer ***all*** the following short answer questions (5 X 2 = 10M) CO BL

a) Discuss any two reasons to view management as significant in an organization. CO1 L1

b) Write a brief note on any one important feature of HRM. CO2 L5

c) Recall Harris Basic EOQ formula and its elements. CO3 L1

d) Name any three sources of financing to startup industries. CO4 L1

e) Outline the importance of Marketing Matrix. CO5 L1

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

		Marks	CO	BL
	UNIT-I			
2. a)	Differentiate between Line and Flat Organization.	6M	CO1	L1
b)	Explain changings skills of manager in global working environment.	6M	CO1	L2
	OR			
3.	Discuss Henry Fayol's contribution to Management.	12M	CO1	L1
	UNIT-II			
4.	Summarize following stages of recruitment process: a) Selection Process b) Induction Process	12M	CO2	L3
	OR			
5. a)	What are the reasons for importance of Performance Appraisal?	6M	CO2	L3
b)	Discuss importance of Job Analysis.	6M	CO2	L1
	UNIT-III			
6. a)	Differentiate between PERT and CPM.	6M	CO3	L1
b)	What are the objectives of Inventory Management Control?	6M	CO3	L1

OR

7.	a)	What inferences can be arrived from ABC analysis?	6M	CO3	L3
	b)	Discuss any three factors that affects Plant Location.	6M	CO3	L1

UNIT-IV

8.		Explain methods of Investment Analysis with simple example/s.	12M	CO4	L4

OR

9.	a)	What are the different sources of financing?	6M	CO4	L1
	b)	Discuss following two concepts in brief: i) Net Present Value ii) Profitability Index	6M	CO4	L1

UNIT-V

10.	a)	Explain following types of Market Segmentation: i) Demographic ii) Geographic	6M	CO5	L2
	b)	Describe Marketing Mix with simple example	6M	CO5	L3

OR

11.	a)	What do you understand from Market Segmentation?	6M	CO5	L1
	b)	Discuss core concepts that are important in marketing	6M	CO5	L1

*** End ***

Hall Ticket Number :										

R-20

Code: 20A532T

II B.Tech. I Semester Supplementary Examinations June 2024

Object Oriented Programming using Java

(Common CSE, AI&DS, AI&ML, CSE(AI) and CSE(DS))

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**

2. In Part-A, each question carries **Two marks.**

3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

		CO	BL
1.	Answer *all* the following short answer questions (5 X 2 = 10M)		
a)	List at least two benefits of constructor overloading	1	L2
b)	List at least two uses of abstract class	2	L1
c)	Define exception handling with an example	3	L1
d)	Define synchronization in the context JAVA programming	4	L2
e)	Discuss Java Lambda expressions	5	L2

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

		Marks	CO	BL
	UNIT-I			
2.	Discus and elaborate the importance of three object oriented programming principles with a suitable program.	12M	1	L2
	OR			
3.	Describe the working mechanism for a constructor to accept two objects as parameters and return an object, supported by a program.	12M	1	L3
	UNIT-II			
4.	Show the concept of runtime polymorphism using method overriding in context of multilevel inheritance with a sample program.	12M	2	L3
	OR			
5.	Examine the necessity and applications of “super” keyword with a sample program.	12M	2	L3
	UNIT-III			
6.	Explain the working mechanism of interfaces with a sample code by highlighting the constants and methods.	12M	2	L2
	OR			
7.	Discuss the concept of multiple catch statements with an example.	12M	2	L2
	UNIT-IV			
8.	Explain how inter-thread communication works in Java programming, with a sample program.	12M	3	L2
	OR			
9.	Explain the working mechanism of generic super class and generic subclass with a sample program.	12M	3	L2
	UNIT-V			
10.	Illustrate how to pass Lambda expression as an argument to a method with a sample program.	12M	4	L3
	OR			
11.	Explain the working mechanism of Map interface in JAVA. Write a programme for HashMap and TreeMap for adding and removing the elements.	12M	4	L2

*** End ***

Hall Ticket Number :										

R-20

Code: 20A533T

II B.Tech. I Semester Supplementary Examinations June 2024

Computer System Architecture

(Common CSE, AI&DS, AI&ML, CSE(AI) and CSE(DS))

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two marks.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

		CO	BL
1.	Answer ***all*** the following short answer questions (5 X 2 = 10M)		
a)	Convert (27.35)8 to the base of 10.	CO1	L3
b)	Explain computer architecture in detail	CO2	L2
c)	Explain the functions of an address bus and data bus	CO1	L2
d)	Draw block diagram of combinational and sequential circuit	CO2	L4
e)	Write the instruction formats.	CO2	L3

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

		Marks	CO	BL
	UNIT-I			
2. a)	What do you mean by complement of a number? Explain 1's and 2's complement method.	6M	CO1	L2
b)	Obtain the 1's and 2's complement of the following eight binary numbers i) 10101110 ii) 10000001 iii) 10000000 iv) 00000001 v) 00000000	6M	CO1	L3
	OR			
3. a)	Explain the functional architecture of the computer system.	6M	CO1	L2
b)	Discuss about fixed point and floating point representations	6M	CO1	L3
	UNIT-II			
4. a)	Simplify the following Boolean function using four variable K-map. Also draw logic diagram of original and simplified circuit: F(w,x,y,z)=∑(2,3,4,5,6,7,11,14,15)	6M	CO1	L2
b)	List the different types of logic gates? Draw the logic circuits and write the truth tables for each logic gate.	6M	CO1	L3
	OR			

5.	a)	Draw and explain the full adder using 8 to 1 multiplexer.	6M	CO2	L2
	b)	Explain how a program is executed in reality. Do make sure that your explanation details about PC, MAR, MBR, IR, etc registers.	6M	CO2	L2

UNIT-III

6.	a)	Write and explain algorithm for floating point addition.	6M	CO1	L2
	b)	Explain the three different types of instruction formats used in basic computer	6M	CO1	L1

OR

7.	a)	What is an addressing mode? List various addressing modes and write brief notes on each.	6M	CO1	L1
	b)	For the pattern X= (A+B)*(C+D), explain three-, two-, one- and zero-address instructions by giving the syntax.	6M	CO1	L1

UNIT-IV

8.	a)	What are the three types of CPU organizations and explain with an example?	6M	CO1	L2
	b)	Illustrate multiple bus organization with neat diagram	6M	CO3	L2

OR

9.	a)	Write short notes on Hardwired Control and Micro-programmed Control	6M	CO2	L4
	b)	Draw and explain the concept of memory hierarchy.	6M	CO1	L2

UNIT-V

10.		What is DMA? Explain DMA transfer in a computer system	12M	CO2	L4

OR

11.	a)	What are handshaking signals? Explain the handshake control of data transfer during input and output operation.	6M	CO2	L4
	b)	Explain the functions of typical input-output interface.	6M	CO1	L2

** End ***

Hall Ticket Number :										

R-20

Code: 20A531T

II B.Tech. I Semester Supplementary Examinations June 2024

Database Management Systems

(Common CSE, AI&DS, AI&ML, CSE(AI) and CSE(DS))

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**

2. In Part-A, each question carries **Two marks.**

3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

1.	Answer ***all*** the following short answer questions (5 X 2 = 10M)		CO	BL
a)	Explain significance of Data Dictionary in DBMS?		CO1	L2
b)	Define a View		CO2	L1
c)	Give Syntax of SQL		CO3	L1
d)	Explain Disadvantages of Normal Forms		CO4	L2
e)	What are TCL commands in DBMS		CO5	L2

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

			Marks	CO	BL
		UNIT-I			
2.	a)	Compare and Contrast Delete and Drop	4M	CO1	L2
	b)	Analyze the Architecture of DBMS with diagram	8M	CO1	L4
		OR			
3.	a)	Who are the different types of database end users? Discuss the main activities of each	6M	CO1	L1
	b)	Compare and Contrast File System and DMBS?	6M	CO1	L2
		UNIT-II			
4.	a)	Explain Domain Constrains with examples	6M	CO2	L3
	b)	Explain any 3 Key Constraints with examples	6M	CO2	L3
		OR			
5.	a)	Explain Various types of attributes in E-R Model with symbols and example	6M	CO2	L3
	b)	Explain Weak entity with example	6M	CO2	L3

UNIT-III

6.		Consider the following relations Sailors(sid, sname,rating, age) Boats(bid, bname, color) Reserves(sid, bid, day) Write the statements in relational Algebra, Relational calculus, Domain Relational calculus and SQL for the following. a) Find the names of sailors who have reserved a Read boat. b) Find the names of sailors who have reserved at least one boat. c) Find the names of sailors who have reserved Red and Green boat. d) Find the names of sailors who have reserved Red or a White boat. e) List all sailors names f) List all red color bid	12M	CO3	L4
		OR			
7.	a)	Compare and Contrast Views and Table	6M	CO3	L2
	b)	Analyze Set Operators with examples	6M	CO3	L3
		UNIT-IV			
8.	a)	Explain 1NF and 2NF with examples	6M	CO4	L3
	b)	Explain Multivalued dependency and 4NFwith example	6M	CO4	L3
		OR			
9.	a)	Explain Lossless Join Decomposition with examples	6M	CO4	L3
	b)	Explain Armstrong's Axioms in Functional Dependency in DBMS	6M	CO4	L2
		UNIT-V			
10.	a)	What are properties of transaction	6M	CO5	L2
	b)	Explain Serializability with example	6M	CO5	L3
		OR			
11.	a)	Why concurrency control is needed demonstrate with example	6M	CO5	L3
	b)	Explain about lock based concurrency control.	6M	CO5	L3

*** End ***

Hall Ticket Number :										

R-20

Code: 20AC33T

II B.Tech. I Semester Supplementary Examinations June 2024

Discrete Mathematics

(Common CSE, AI&DS, AI&ML, CSE(AI) and CSE(DS))

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**

2. In Part-A, each question carries **Two marks.**

3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

			CO	BL
1.	Answer ***all*** the following short answer questions	(5 X 2 = 10M)		
a)	Write the converse and contrapositive statement of the statement "If there is rain, then I buy an umbrella".		1	L1
b)	Find the generating function for $f_n = 3^n$, $n \geq 0$ in closed form.		2	L1
c)	Give an example of a monoid which is not a group. Justify your answer.		3	L1
d)	How many vertices are needed to construct a graph with 7 edges, in which each vertex of degree 2?		4	L1
e)	Write the properties of tree.		5	L1

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

			Marks	CO	BL
		UNIT-I			
2.	a)	Define Tautology and contraction. Verify whether the formula $\big((p \to r) \wedge (q \to r)\big) \to \big((p \vee q) \to r\big)$ is tautology or not.	6M	CO1	L3
	b)	Use the indirect method to show that $R \to \neg Q, R \vee S, S \to \neg Q, P \to Q \Rightarrow \neg P$.	6M	CO1	L3
		OR			
3.	a)	Obtain principle disjunctive normal form of the formula $(\neg p \to r) \wedge (q \leftrightarrow p)$.	6M	CO1	L3
	b)	Explain automatic theorem proving with an example.	6M	CO1	L4
		UNIT-II			
4.	a)	Define recurrence relation. Find the first four terms of $a_k = 2a_{k-1} + k$ for all integers $k \geq 2, a_1 = 1$.	6M	CO2	L3
	b)	Solve the recurrence relation by using the characteristic roots method $a_n + 4a_{n-1} + 4a_{n-2} = 8$ for $n \geq 2$ given $a_0 = 1, a_1 = 2$.	6M	CO2	L3
		OR			
5.	a)	Solve the recurrence relation $a_n - a_{n-1} = 3n + 2$, $a_0 - 1, n \geq 1$ by substitution method	6M	CO2	L3
	b)	Use the generating method to solve the recurrence relation $a_n - 6a_{n-1} + 8a_{n-2} = 3^n$, $n \geq 1$ where $a_0 = 3, and\ a_1 = 7$.	6M	CO2	L3
		UNIT-III			
6.	a)	Draw the Hasse diagram for the poset $(P(A), \subseteq)$, where $A = \{a, b, c\}$.	6M	CO3	L3

b) Determine whether the following relation is reflexive, irreflexive, symmetric, asymmetric, antisymmetric or transitive on the set $A = \{1, 2, 3, 4\}$,
$R = \{(1,1), (1,2), (2,1), (2,2), (3,3), (3,4), (4,3), (4,4)\}$. 6M CO L3

OR

7. a) Let *f* and *g* be functions from R to R defined by $f(x) = ax + b$ and $g(x) = 1 - x + x^2$, if $(g \circ f)(x) = 9x^2 - 9x + 3$, determine a, b values. 6M CO3 L3

b) Let G be the set of all non-zero real numbers and let $a * b = \frac{ab}{4}$, Show that $(G, *)$ is an abelian group. 6M CO3 L2

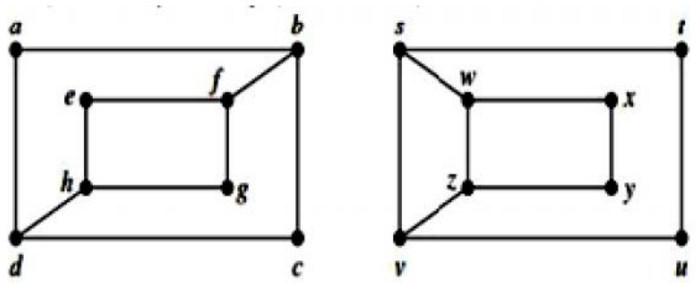
UNIT-IV

8. a) Define the following with examples: (i) Degree of a vertex (ii) Complete Graph (iii) Regular graph. 6M CO4 L2

b) Define (i) Adjacency matrix (ii) Incidence matrix of simple graph with example. 6M CO4 L2

OR

9. a) State the necessary condition for two graphs to isomorphic. Verify the following two graphs are isomorphic or not.



G H 6M CO4 L3

b) Define (i) Euler's path (ii) Euler circuit (iii) Hamiltonian path. 6M CO4 L1

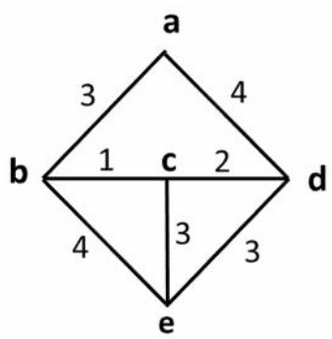
UNIT-V

10. a) Write an algorithm to obtain a minimum spanning tree and illustrate the algorithm with an example. 6M CO5 L3

b) Define (i) Rooted tree (ii) Binary tree (iii) Spanning tree. 6M CO5 L1

OR

11. a) Find the weight of the minimal spanning tree of the following graph by using Kruskal's algorithm.



6M CO5 L4

b) Draw the all different spanning trees of complete bipartite graph $K_{2,2}$ 6M CO5 L3

*** End ***