Hall Ticket Number :										

R-20

Code: 20AC35T

II B.Tech. I Semester Supplementary Examinations July 2023

Management Science

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

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)	What is management?	1	L1
b)	Define Job design.	2	L1
c)	What is Job production?	3	L2
d)	Explain about NPV method.	4	L2
e)	What is market segmentation?	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.	Explain the functions of Management.	12M	1	L2
	OR			
3.	Explain the Line organization structure with its merits and demerits.	12M	1	L3
	UNIT–II			
4.	Explain the functions of Human Resource Management.	12M	2	L2
	OR			
5.	Explain the importance of Induction in an organization.	12M	2	L3
	UNIT–III			
6.	Explain the factors influencing the selection of a Plant Location.	12M	3	L4
	OR			
7.	Briefly explain the following inventory control techniques a) EOQ b) ABC Analysis	12M	3	L4
	UNIT–IV			
8.	What is capital budgeting? Explain the Net present value method with suitable example.	12M	4	L4
	OR			
9.	Explain various sources of finance.	12M	4	L3
	UNIT–V			
10.	Explain the stages of Product life cycle in case of FMCG products.	12M	5	L5
	OR			
11.	Explain the factors affecting to choose a channel in case of electronic products.	12M	5	L5

*** End ***

Hall Ticket Number :										

R-20

Code: 20A532T

II B.Tech. I Semester Supplementary Examinations July 2023

Object Oriented Programming using Java

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

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)	What is Garbage Collection?	1	L1
b)	List any 4 methods from the String class.	2	L3
c)	What is the use of access specifiers?	3	L2
d)	What are the ways to create a thread in java?	4	L4
e)	Write down the methods of the *list* interface.	5	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)	Explain, how a java program is executed?	4M	1	L3
b)	What are the primitive data types in Java? Write about type conversions.	8M	1	L1
	OR			
3.	Discuss the various types of operators in java.	12M	1	L1
	UNIT–II			
4.	What are the benefits of inheritance? Explain the various forms of inheritance with suitable code segments.	12M	2	L3, L4
	OR			
5. a)	What is meant by dynamic method dispatch? Explain with a program	8M	2	L3, L4
b)	With suitable code segments illustrate various uses of 'final' keyword.	4M	2	L3
	UNIT–III			
6.	How to define a package? How to access, import a package? Explain with examples.	12M	3	L2

OR

7.	a)	What is an exception? How are exceptions handled in Java programming?	6M	3	L2
	b)	With a program illustrate user defined exception handling	6M	3	L2

UNIT–IV

8.	a)	What are Generics in Java? What are the advantages of using generics?	6M	4	L2, L3
	b)	Explain Generic method with suitable example program.	6M	4	L2, L3

OR

9.		Describe the need of thread synchronization. How is it achieved in Java programming? Explain with a suitable program.	12M	4	L3

UNIT–V

10.	a)	What are Java Lambda Expressions? With suitable example explain Functional Interface of Lambda Expression.	6M	5	L3
	b)	Write a program to read and display the given subject details using ArrayList class. Math Physics Chemistry Biology English	6M	5	L3

OR

11.		What is Map in Java Collection Framework? With suitable example explain the creation of Map using HashMap & TreeMap and also demonstrate the usage of put() and get() methods.	12M	5	L3

*** End ***

Hall Ticket Number :										

R-20

Code: 20A533T

II B.Tech. I Semester Supplementary Examinations July 2023

Computer System Architecture

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

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 the different types of logic gates.		CO1	L1
b)	What are min terms and max terms?		CO2	L2
c)	Define Basic Machine Instructions		CO3	L2
d)	What is a Datapath?		CO4	L2
e)	How interrupts are enables and disabled?		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)	Explain fixed point representation and Floating–Point Representation?	6M	CO1	L2
	b)	Convert the given Binary number 11011101 into i) BCD ii) Hexa-decimal iii) Decimal numbers.	6M	CO1	L3
		OR			
3.	a)	Discuss binary storage and registers	6M	CO1	L2
	b)	Draw the logic circuits and write the truth tables for each logic gate.	6M	CO1	L2
		UNIT–II			
4.	a)	Distinguish between combinational and sequential circuits	6M	CO2	L4
	b)	Simplify the Boolean function F (A, B, C, D) = Σ (0,2,5,8,9,13,15) and DO-CARE condition D (A, B, C, D) = Σ (1,7,14)	6M	CO2	L1
		OR			
5.		What is multiplexer? Explain and construct a 4 to 1 line multiplexer with neat diagram	12M	CO2	L2

UNIT–III

6.	a)	Analyze fixed point representation with example	6M	CO3	L4
	b)	Discuss various instruction formats?	6M	CO3	L2

OR

7.	a)	Write the hardware implementation for signed magnitude data	6M	CO3	L2
	b)	Explain the flowchart for interrupt cycle?	6M	CO3	L2

UNIT–IV

8.	a)	What is main memory in memory organization? Explain ROM and RAM with diagrams	6M	CO4	L2
	b)	Distinguish between hardwired control and micro programmed control	6M	CO4	L2

OR

9.	a)	What do you mean by associative memory? Give applications of associative memory	6M	CO4	L2
	b)	Explain the functionalities of memory management hardware	6M	CO4	L2

UNIT–V

10.	a)	What is the difference between a software interrupt and a subroutine call? Give a few examples of external interrupts and internal interrupts.	6M	CO5	L2
	b)	Difference between isolated I/O and memory-mapped I/O? What are the advantages and disadvantages of each?	6M	CO5	L4

OR

11.	a)	Explain the interfacing circuits briefly	6M	CO5	L2
	b)	Demonstrate the mechanism of DMA	6M	CO5	L3

*** End ***

Hall Ticket Number :										

R-20

Code: 20A531T

II B.Tech. I Semester Supplementary Examinations July 2023

Database Management Systems

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

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) Compare and Contrast file Systems with database systems?		CO1	L2
b) What is an Entity? Explain different type of Entities.		CO2	L2
c) How trigger works in SQL?		CO3	L3
d) Illustrate Denormalization?		CO4	L4
e) What is dead lock? How it will be handled?		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)	How database systems are evolved?	6M	CO1	L2
b)	Discuss about different types of Data models?	6M	CO1	L2
OR				
3. a)	Discuss about the logical database Design?	6M	CO1	L2
b)	List and explain various database languages with example?	6M	CO1	L2
UNIT–II				
4. a)	Explain the various components of ER diagram with example.	6M	CO2	L3
b)	Describe about various keys in relational model. Explain in detail.	6M	CO2	L3
OR				
5. a)	Define the relational data model. Explain Select and Intersection operation of Relational Algebra with example.	6M	CO2	L3
b)	Explain the importance of Null values in Relational Model.	6M	CO2	L2

UNIT–III

6.	a)	Explain various Data types used in SQL and Pl/SQL.	6M	CO3	L3
	b)	List and explain various DML, DDL commands in SQL.	6M	CO3	L3

OR

7.	a)	What are Views in SQL? Give an example	6M	CO3	L3
	b)	Explain Aggregate functions with examples.	6M	CO3	L3

UNIT–IV

8.	a)	Explain the advantages of decomposition? Discuss the problems faced in decomposition	6M	CO4	L4
	b)	Explain about Boyce Codd normal form with an example.	6M	CO4	L4

OR

9.	a)	Why normalization is needed? Explain the process of normalization.	6M	CO4	L2
	b)	State 1NF, 2NF & 3NF and explain with examples.	6M	CO4	L4

UNIT–V

10.	a)	What is transaction? Explain the ACID Properties.	6M	CO5	L3
	b)	Explain the terms Shared lock and Exclusive lock	6M	CO5	L3

OR

11.	a)	Explain various locking methods with examples.	6M	CO5	L3
	b)	What support SQL provides for users to specify transaction level behavior	6M	CO5	L3

*** End ***

Hall Ticket Number :										

R-20

Code: 20AC33T

II B.Tech. I Semester Supplementary Examinations July 2023

Discrete Mathematics

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

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)	What is inference? Write any two rules of inference?	1	L1
b)	Define Characteristic polynomial? How to find the roots from Character istic polynomial?	2	L1
c)	List out the properties of Groups?	3	L1
d)	How connected graphs are different from disconnected graphs?	4	L2
e)	What is spanning tree? Why spanning trees are useful?	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)	Find the Principle Conjunctive Normal Form (PCNF) of (PVR) ∧ (PV~Q)?	6M	CO1	2
b)	Show that: (~P∧(~Q∧R)∨(Q∧R)∨(P∧R)⇔R?	6M	CO1	2
	OR			
3. a)	Show that S∨R is tautologically implied by (P∨Q)∧(P→R)∧(Q→S)	6M	CO1	2
b)	Give short notes on i) Tautology ii) Contradiction iii) well-formed formula	6M	CO1	1
	UNIT–II			
4. a)	Solve the recurrence relation $a_n - 7a_{n-1}+10a_{n-2}=2^n$ by the method of generating functions with initial conditions $a_0=2$ and $a_1=1$?	6M	CO2	2
b)	What is recurrence relation? Write different methods to solve recurrence relations?	6M	CO2	1
	OR			

5.	a)	Use generating functions to solve the recurrence relation $a_n+3a_{n-1}-4a_{n-2}=0,n>=2$ with the initial condition $a_0=3,a_1=-2$?	6M	CO2	2
	b)	What is recurrence Relation? List out various methods for solving recurrence relations?	6M	CO2	1

UNIT–III

6.	a)	Define relations and its different representations? Let S be a binary relation defined as S={(a,b):a-b<=3 and a,b ∈R}, Determine whether S is Reflexive, Symmetric, Anti-Symmetric and Transitive?	6M	CO3	2
	b)	Differentiate homomorphism and isomorphism in groups?	6M	CO3	3

OR

7.	a)	R is a relation on set A={1,2,3,4,5} given as R={(1,2),(1,3),(1,4),(2,1),(2,2),(2,3),(3,4),(4,2),(4,4)}. Determine whether the relation R is reflexive, irreflexive, symmetric or anti symmetric on A or not?	6M	CO3	2
	b)	What is group? Specify that set of natural numbers N forms a group under the binary operation * defined by a*b= min(a,b) ∀ a, b ∈N or not?	6M	CO3	2

UNIT–IV

8.	a)	Explain travelling sales person problem with an example?	6M	CO4	2
	b)	Describe about Hamiltonian Graph?	6M	CO4	1

OR

9.	a)	Given an example of a graph which is (i) Eulerian but not Hamiltonian (ii) Hamiltonian but not Eulerian (iii) Hamiltonian and Eulerian (iv) Neither Hamiltonian nor Eulerian	6M	CO4	1
	b)	Give short notes on Graph isomorphism?	6M	CO4	1

UNIT–V

10.	a)	What is a shortest spanning tree? What are the different ways of creating minimum spanning trees?	6M	CO5	1
	b)	List out the properties trees?	6M	CO5	1

OR

11.	a)	Define binary tree. How it is different from trees?	6M	CO5	1
	b)	Give short notes on i) Rooted tree ii) fundamental circuit iii)pendent vertices	6M	CO5	1

*** End ***