Hall Ticket Number :										

R-20

Code: 20AC35T

II B.Tech. I Semester Supplmentary Examinations August 2022

Management Science

(Common to CSE and AI&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 mark.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

		CO	Blooms Level
1.	Answer ***all*** the following short answer questions (5 X 2 = 10M)		
a)	Explain any four functions of Management.	CO1	L2
b)	Significance of HRM.	CO2	L2
c)	Factors affecting Plant Location.	CO3	L2
d)	Advantages of Net Present Value Method.	CO4	L2
e)	Rationale for pricing objectives.	CO5	L2

PART-B

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

		Marks	CO	Blooms Level
	UNIT–I			
2.	Discuss the various functions which constitute the process of management and explain the importance of each function at different levels of hierarchy.	12M	CO1	L3
	OR			
3.	Explain the concept of Line and Staff in management and outline the process of staffing.	12M	CO1	L4
	UNIT–II			
4.	Define HRM and examine in detail the evolution of Human Resource Management.	12M	CO2	L4
	OR			
5.	Explain the concept of Compensation and the factors that influence compensation decisions in organisations.	12M	CO2	L3
	UNIT–III			
6. a)	Explain the importance of Break Even Point.	4M	CO3	L2

	b)	From the following data calculate: (i) BEP (in units) (ii) BEP (in sales value) (iii) P/V ratio (iv) How many number units are to be sold to earn a profit of Rs.1,20,000/- if the number of units sold are 20,000 units, selling price per unit is Rs.30/- variable cost per unit is Rs.15/- and fixed cost is Rs.80,000/-	8M	CO3	L4
		OR			
7.		Define and distinguish among PERT and CPM.	12M	CO3	L4
		UNIT–IV			
8.		Examine the scope and functions of Financial Management in context of the changing environment.	12M	CO4	L4
		OR			
9.		What do you understand by the working capital? Explain briefly the factors determining the working capital of an organization.	12M	CO4	L3
		UNIT–V			
10.		How is marketing different from selling? Explain how marketing starts and ends with the customer.	12M	CO5	L3
		OR			
11.		What are the factors that determine the choice of the channels of distribution?	12M	CO5	L3

*** End ***

Hall Ticket Number :										

R-20

Code: 20A532T

II B.Tech. I Semester Supplmentary Examinations August 2022

Object Oriented Programming using Java

(Common to CSE and AI&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 mark.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

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

a)	What gets printed when the following program is compiled and run.
	public class test {
	public static void main(String args[]) {
	byte x = 3;
	x = (byte)~x;
	System.out.println(x);
	}
	}
			1	L3

b)	Explain access control.		2	L2
c)	Define package.		3	L1
d)	What is the purpose of synchronization?		4	L2
e)	List the importance of the Map interface.		5	L1

PART-B

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

			Marks	CO	Blooms Level
		UNIT–I			
2.	a)	Explain constructor overloading with an example.	6M	1	L2
	b)	List the Java Buzzwords. Explain.	6M	1	L1
		OR			
3.	a)	Explain recursion with an example.	6M	1	L2
	b)	List the different control statements. Explain.	6M	1	L1
		UNIT–II			
4.	a)	Write a Java program to arrange the n number of list of string in an order	6M	2	L3
	b)	List the usage of the Super keyword in java. Explain.	6M	2	L1

OR

5.	a)	Describe the importance of **static** and **this** keyword in java. Explain	6M	2	L2
	b)	Explain inheritance with an example.	6M	2	L2

UNIT–III

6.	a)	How multiple inheritance is achieved in java programming with interface? Explain.	6M	3	L2
	b)	Write a Java program to implement the multilevel inheritance.	6M	3	L1

OR

7.	a)	Write a java program to demonstrate user defined exception.	6M	3	L3
	b)	Explain static methods in interface with example.	6M	3	L2

UNIT–IV

8.	a)	What is a thread? How can you create a thread using a Runnable interface? Explain.	6M	4	L2
	b)	How to create Generic Constructions in java? Explain with an example.	6M	4	L2

OR

9.	a)	How can you create multiple threads? Explain with an example.	6M	4	L3
	b)	Explain Generic class hierarchies.	6M	4	L2

UNIT–V

10.	a)	Write a java program to demonstrate StringTokenizer class operations.	6M	5	L4
	b)	How can you pass Lambda expressions as arguments? Explain.	6M	5	L2

OR

11.	a)	Explain the Map interface in java.	6M	5	L2
	b)	Explain Lambda expressions.	6M	5	L2

*** End ***

Hall Ticket Number :										

R-20

Code: 20AC41T

II B.Tech. II Semester Regular Examinations August 2022

Probability and Statistics

(Common to CE, ME, CSE and AI&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 mark.**
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	Blooms Level
a) The aerokopter AK 1-3 is an ultra-lightweight manned kit helicopter with a high rotor tip speed. A sample of 8 measurements of speed, in meters per second yielded 204, 208, 205, 211, 207, 201, 201, 203. Find the mean and mode for this sample.	1	L1
b) State the addition theorem of probability. Explain it if the events are (i) mutually exclusive and (ii) Independent.	2	L1
c) Write the conditions for which binomial distribution can be approximated by Poisson distribution.	3	L1
d) Discuss about the errors that occur in sampling.	4	L1
e) Write the test statistic for the difference between two variances.	5	L1

PART-B

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

		Marks	CO	Blooms Level
	UNIT–I			
2.	Calculate the mean, median and mode for the frequency distribution given below:			

Height (nm)	205-245	245-285	285-325	325-365	365-405	Total
Frequency	3	11	23	9	4	50

12M 1 L2

OR

3. a) Find Karl Pearson's coefficient of correlation between sales and expenses of the following 10 firms:

Firm	1	2	3	4	5	6	7	8	9	10
Sales	50	50	55	60	65	65	65	60	60	50
Expenses	11	13	14	16	16	15	15	14	13	13

6M 1 L3

b) Calculate Spearman's rank correlation coefficient between advertisement cost and sales from the following data:

Advertisement cost ('000 Rs)	39	65	62	90	82	75	25	98	36	78
Sales (Lakhs)	47	53	58	86	62	68	60	91	51	84

6M 1 L3

UNIT–II

4. a) Two cards are drawn at random from an ordinary deck of 52 cards. What is the probability of getting two aces if
(i) the first card is replaced before the second card is drawn;
(ii) the first card is not replaced before the second card is drawn? 6M 2 L3

b) State and prove Baye's theorem. 6M 2 L2

OR

5. A random variables X has the following probability function:

x	0	1	2	3	4	5	6	7
P(x)	0	K	2K	2K	3K	K^2	$2K^2$	$7K^2+K$

Determine: (i) K (ii) Evaluate P(X<6) (iii) Evaluate P(0<X<5) (iv) mean and variance — 12 C02 L5

UNIT–III

6. a) Fit a binomial distribution to the following data:

x:	0	1	2	3	4	5
f:	10	10	30	25	15	10

6M 3 L3

b) Given a random variable having the normal distribution with mean 16.2 and variance 1.5625, find the probabilities that it will take on a value (i) greater than 16.8, (ii) between 13.6 and 18.8. — 6M 3 L3

OR

7. a) If a random variable X follows Poisson distribution such that $P(X=1)=P(X=2)$, find (i) the mean and variance of the distribution (ii) $P(X=0)$. — 6M 3 L3

b) An automatic machine fills distilled water in 500 ml bottles. Actual volumes are normally distributed about a mean of 500 ml, and standard deviation 20ml.

(i) What proportion of the bottles are filled with water outside the tolerance limit of 475 ml to 525 ml?

(ii) To what value does the standard deviation need to be adjusted if 99% of the bottles must be within tolerance limits? — 6M 3 L3

UNIT–IV

8. a) A random sample of size 100 is taken from a population with standard deviation 5.1. Given that the sample mean is 21.3, construct a (i) 95% (ii) 98% confidence interval for the population mean. — 8M 4 L3

b) Write the procedure in testing the hypothesis. — 4M 4 L1

OR

9. a) Suppose that we want to estimate the true proportion of defectives in a very large shipment of adobe bricks, and that we want to be at least 95% confidence that the error is at most 0.04. How large a sample will we need if

(i) we have no idea what the true proportion might be;

(ii) we know that the true proportion doesn't exceed 0.12? — 6M 4 L3

b) To test the claim that the resistance of electric wire can be reduced by more than 0.050 ohm by alloying, 32 values obtained for standard wire yielded mean of 0.136 ohm and standard deviation 0.004 ohm, and another 32 values obtained for alloyed wire yielded mean 0.083 ohm and standard deviation 0.005 ohm. At 0.05 level of significance, does this support the claim? — 6M 4 L3

UNIT–V

10. Two horses A and B were tested according to the time (in seconds) to run a particular track with the following results. Test whether the two horses have the same running capacity?

Horse A	28	30	32	33	33	29	34
Horse B	29	30	30	24	27	29	--

12M 5 L3

OR

11. From the following data find whether there is any significant liking in the habit of taking soft drinks among the categories of the employees.

Soft drinks	Clerks	Teachers	Officers
Pepsi	10	25	65
Thumsup	15	30	65
Fanta	50	60	30

12 5 L1

*** End ***

Hall Ticket Number :										

R-20

Code: 20A533T

II B.Tech. I Semester Supplmentary Examinations August 2022

Computer System Architecture

(Common to CSE and AI&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 mark.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

		CO	Blooms Level
1.	Answer ***all*** the following short answer questions (5 X 2 = 10M)		
	a) Write the 2's complement of 1011011	CO1	L3
	b) Define Flip flop.	CO2	L1
	c) What is Addressing Modes?	CO3	L1
	d) What is cache memory?	CO4	L1
	e) Write the factors considered in designing an I/O subsystem	CO5	L1

PART-B

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

		Marks	CO	Blooms Level
	UNIT–I			
2.	a) Convert (372.34)8 to hexadecimal system number	6M	CO1	L3
	b) Perform the arithmetic operation in binary using 2's complement representation: (+42) + (-13) (ii) (-42) – (-13)	6M	CO1	L3
	OR			
3.	a) Convert the following numbers with the indicated bases to decimal. : (12121)3 (ii) (4310)5 (iii) (50)7	6M	CO1	L3
	b) Solve the (+21)+(-16) and (-23)+(+13) arithmetic operations using 1's complement representation for negative numbers	6M	CO1	L3
	UNIT–II			
4.	a) Explain the Logic diagram of JK flip-flop.	6M	CO2	L2
	b) Show that (X + Y' + XY) (X + Y') (X'Y) = 0.	6M	CO2	L3
	OR			
5.	a) Explain about Shift Registers.	6M	CO2	L2
	b) Prove that ABC + ABC' + AB'C + A'BC = AB + AC + BC.	6M	CO2	L3

UNIT–III

6.	a)	What are addressing modes? Explain the various addressing modes with examples	6M	CO3	L1
	b)	Explain different types of instructions with examples. Compare their relative merits and demerits	6M	CO3	L2

OR

7.	a)	Explain how the expression X=A X B + C X C will be executed in one address, two address and three address processors in an accumulator organization.	6M	CO3	L2
	b)	Derive and explain an algorithm for adding and subtracting two floating point binary numbers	6M	CO3	L3

UNIT–IV

8.	a)	Explain about main memory and its types.	6M	CO4	L2
	b)	Discuss any six ways of improving the cache performance.	6M	CO4	L2

OR

9.	a)	Explain the virtual memory translation and TLB with necessary diagram.	6M	CO4	L2
	b)	List the advantages of using Virtual Memory.	6M	CO4	L2

UNIT–V

10.	a)	Discuss the design of a typical input or output interface.	6M	CO5	L2
	b)	Give comparison between memory mapped I/O and I/O mapped I/O	6M	CO5	L2

OR

11.	a)	Explain the action carried out by the processor after occurrence of an interrupt.	6M	CO5	L2
	b)	Explain how I/O devices can be interfaced with a block diagram	6M	CO5	L2

*** End ***

Hall Ticket Number :										

R-20

Code: 20A531T

II B.Tech. I Semester Supplmentary Examinations August 2022

Database Management Systems

(Common to CSE and AI&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 mark.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A
(Compulsory question)

		CO	Blooms Level
1.	Answer ***all*** the following short answer questions (5 X 2 = 10M)		
a)	Enlist various types of attributes?	CO1	L3
b)	Define Armstrong axioms for FD's?	CO3	L2
c)	Enlist the aggregate functions supported by SQL?	CO2	L3
d)	What is cursor in SQL?	CO4	L2
e)	What are the ACID properties of a transaction?	CO5	L2

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

		Marks	CO	Blooms Level
	UNIT–I			
2. a)	Define Database? Discuss about applications of Database Systems?	6M	CO1	L2
b)	Discuss about different types of Data models?	6M	CO1	L2
	OR			
3. a)	Define Data Abstraction and discuss levels of Abstraction?	6M	CO1	L2
b)	Draw and Explain the Architecture of Database?	6M	CO1	L2
	UNIT–II			
4. a)	What do you mean by cardinality? What are different kinds of cardinalities?	6M	CO2	L2
b)	Draw ER diagram for Ternary Relationship set with suitable example?	6M	CO2	L5
	OR			
5. a)	Write about logical database design (ER to Relational) with suitable examples?	6M	CO2	L3
b)	Draw ER diagram for Library Management system.	6M	CO2	L5
	UNIT–III			
6. a)	Discuss different types of aggregate operators with examples using SQL?	6M	CO3	L3

	b)	What is a join? Explain about conditional join and natural join with syntax and example.	6M	CO3	L3

OR

7.	a)	Given the relations *employee(name,salary,deptno)* *department (deptno, deptname, address)* Write SQL Query to find second highest salary of Employee from Employee table and in which Department?	6M	CO3	L5
	b)	Define trigger and explain its three parts? Differentiate row level and statement level triggers?	6M	CO3	L3

UNIT–IV

8.	a)	What is Data Decomposition? List and Explain Problems related to Decomposition?	5M	CO4	L2
	b)	Consider a relation scheme R = (A, B, C, D, E, H) on which the following functional dependencies hold: {A→B, BC→D, E→C, D–>A}. Write the candidate keys of R?	7M	CO4	L5

OR

9.	a)	If R= {A, B, C, G, H, I} and FD's are F= {A→B, B→HI, CG→H} Why R is not in 4NF?	7M	CO4	L5
	b)	Explain Lossless Join Decomposition with a suitable example.	5M	CO4	L3

UNIT–V

10.	a)	Consider the transactions T1, T2, and T3 and the schedules S1 and S2 given below. ***T1:*** *r1(X);r1(Z);w1(X);w1(Z)* ***T2:*** *r2(Y);r2(Z);w2(Z)* ***T3:*** *r3(Y);r3(X);w3(Y)* ***S1:*** *r1(X); r3(Y); r3(X); r2(Y); r2(Z); w3(Y); w2(Z); r1(Z); w1(X); w1(Z)* ***S2:*** *r1(X); r3(Y); r2(Y); r3(X); r1(Z); r2(Z); w3(Y); w1(X); w2(Z); w1(Z)* Analyze which one of the schedules is conflict-serializable?	8M	CO5	L5
	b)	Explain concurrency control with Lock based protocols	4M	CO5	L3

OR

11.	a)	Why is concurrency control needed? Explain lost update, Inconsistent retrievals and Uncommitted dependency anomalies.	6M	CO5	L3
	b)	Discuss two-phase locking protocol and strict two-phase locking protocols?	6M	CO5	L3

*** End ***