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	Cod	de: 20AC33T	<u> </u>	"	1	·		l	1			_		R-20		
		.Tech. I Semeste	er Regu	ılar &	Sup	pler	men	tary	Exc	amir	natio	ons De	ecem	ber 2	2023	
			_	Disc		_	_	_	-	_						
	Ма	(Con x. Marks: 70	nmon C	CSE, A	I&DS	5, Al8	kМL,	CSE	(AI)	and	CSI	E(DS)		e: 3 F	lours	
	Ma	X. Marks. 70				****	****	¢					11111	C. J I	10013	
	Not	e: 1. Question Pape			•		•		nd <b>P</b>	art-l	В)					
		<ol> <li>In Part-A, each</li> <li>Answer ALL th</li> </ol>	•													
		J. Allswei ALL th	c quest	10113 111	ı aı		RT-A	ai t-D	,							
				(0	Comp	ulso	ry qu	estio	n)							
1.	Ans	wer <i>all</i> the follo	wing s	hort a	nsw	er c	ques	tion	S	(5	5 X 2	2 = 10	OM)		CO	BL
ć	,	xpress in the ealthy can do al	•				the	stat	eme	ent	"Ev	eryon	e wh	o is	1	L1
k	o) F	ind the generati	ng fund	ction	for t	he s	equ	ence	e 1,-	-1,1	,-1,1	1,-1	i		2	L1
(	c) D	efine partial ord	er rela	tion.											3	L1
(	•	an a simple gra our answer.	aph ex	kist w	ith 1	15 v	ertic	ces	eacl	h of	de	gree	5? Ju	stify	4	L1
•	•	xplain briefly ab	out tre	es.											5	L1
	PART-B															
	Answer <i>five</i> questions by choosing one question from each unit ( $5 \times 12 = 60$ Marks)															
						UN								larks	СО	BL
2.	a)	Verify whether	the for	rmula	$(\neg p)$	$0 \wedge ($	$p \vee q$	$q)\big) -$	<i>→ q</i> is	s a t	taut	ology	or			
		not, without cor			`			,						6M	CO1	L3
	b)	Show that the	hypoth	eses,	, "It i	is no	ot su	ınny	this	s aft	ern	oon a	ınd			
		it is colder than														
		sunny", "If we detrip", and "if we														
		sunset", lead to				•							-	6M	CO1	L2
		,				R					- ,					
3.	a)	Obtain the PCN	NF and	I PDN	IF of	f (¬.	$P \rightarrow$	R)	$\setminus (Q$	$\rightarrow I$	P).			6M	CO1	L2
	b)	Show that $r$	$\rightarrow s$	can	be	dei	rived	d fr	om	the	e p	remis	ses			
		$p \rightarrow (q \rightarrow s), \neg$	$r \vee p$ ar	nd $q$ I	by u	sing	rule	es of	f infe	erer	ice			6M	CO1	L2
						UNI	IT-II									
4.	a)	Solve the recur	rence	relati	on											
		S(k)-S(k-1)-S(k-1)	2S(k-2)	(2) = 0	S(0)	=0	,S(1)	=1	•					6M	CO2	L3
	b)	Find the genera	ating fu	unctio		the <b>R</b>	Fibo	onac	cci s	equ	enc	e.		6M	CO2	L2
5.	a)	Find the genera	al solut	tion o			urre	ence	rela	atior	1					
	,	$a_n - 5a_{n-1}$				_								6M	CO2	12
		I	- 11			, . • •								O.41	502	

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- b) Solve the recurrence relation  $a_n 6a_{n-1} + 9a_{n-2} = 0$  for  $n \ge 2$  given that  $a_0 = 0$ , and  $a_1 = 12$ , by generating functions method.
- 6M CO2 L2

**UNIT-III** 

- 6. a) Let  $A = \{1, 2, 3, 4\}$  and  $B = \{a, b, c\}$  let  $R = \{(1, a), (1, b), (2, b), (2, c), (3, b), (4, a)\}$  and  $S = \{(1, b), (2, c), (3, b), (4, b)\}$ .
  - Compute (i) complement of R (ii)  $R \cup S$  (iii)  $R \cap S$ .

- 6M CO3 L2
- b) Draw the Hasse diagram for the positive divisors for 36 by considering the partial order divisibility.
- 6M CO3 L3

OR

- 7. a) If \*is the binary operation on the set of real numbers defined by a\*b=a+b+2ab, then (i) show that ( ,\*) is semigroup. (ii) find the identity element if it exists.
- 6M CO3 L2

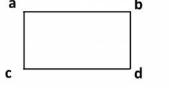
b) Explain compatibility relation with examples.

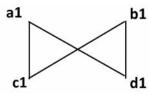
6M CO3 L3

**UNIT-IV** 

- 8. a) Define (i) simple graph (ii) Pendent vertex (iii) Indegree and Outdegree of a vertex.
- 6M CO4 L2

b) Show that the following graphs are isomorphism.





6M CO4 L3

OR

- 9. a) Define the following with examples: (i) Degree of a vertex(ii) Complete Graph (iii) Regular graph.6M
  - 6M CO4 L2
  - b) Define (i) Euler's path (ii) Euler circuit (iii) Hamiltonian path (iv) Hamiltonian circuit.
- 6M CO4 L2

UNIT-V

10. a) What is meant by Pendant Vertices? Explain.

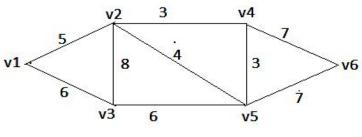
4M CO5 L2

b) Distinguish DFS and BFS with examples.

8M CO5 L4

OR

11. Explain Kruskal's algorithm and find the shortest spanning tree for the following weighted graph.



12M CO<sub>5</sub> L<sub>4</sub>

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l	II B.Te	ech. I Semester Regular & Supplementary Examinations Dec	ember	2023							
		Management Science									
	Mone	(Common CSE, AI&DS, AI&ML, CSE(AI) and CSE(DS))	Time o. 2	Hours							
Ι	viax.	Marks: 70 *******	Time: 3	HOUIS	i						
N	Note: 1. Question Paper consists of two parts (Part-A and Part-B)										
	2. In Part-A, each question carries <b>Two marks.</b>										
	3	3. Answer ALL the questions in Part-A and Part-B									
		<u>PART-A</u> (Compulsory question)									
1	. An	swer <b>all</b> the following short answer questions ( $5 \times 2 = 10M$ )	(	со в	L						
	a) E	xplain Management functions briefly.	С	O1 L	1						
	b) L	ist any four functions of Human Resource Management.	С	O2 L	1						
	•	Describe Job Production with at least two examples.	C	O3 L	1						
	,	Vhat do you learn from Pay Back Period method?		:04 L							
		Summarize market segmentation in your own words.		:O5 L							
	c, c	PART-B	C	.O5 L	_						
	A	Answer <i>five</i> questions by choosing one question from each unit (5 x 12 = 6)	60 Marks	s)							
			Marks	CO	BL						
		UNIT-I									
2.	a)	Illustrate Line and Staff organization.	6M	CO1	L2						
	b)	Tabulate the difference between Divisional and Matrix									
		Organization.	6M	CO1	L1						
		OR									
3.		Summarize Taylor's Functional Organization through a									
		line diagram along with its merits and demerits.	12M	CO1	L1						
		UNIT-II									
4.	a)	List at least 6 factors that affects Plant Location and									
		their importance in brief.	6M	CO2	L2						
	b)	Differentiate between Mass Production and Batch									
		Production.	6M	CO2	L1						
		OR									
5.	a)	Why manpower planning is important for any organization?	6M	CO2	L2						
	b)	What are the factors that influence man power planning?	6M	CO2	L1						
		UNIT-III									
6.	a)	Derive the Basic Economic Order Quantity for Basic									
		Inventory Model.	6M	CO3	L3						
	b)	Demonstrate ABC analysis through a simple example.	6M	CO3	L3						
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## OR

7. a)	Briefly discuss factors affecting inventory control.	6M	CO3	L1
b)	What do you understand from Just-In-Time theory/philosophy?	6M	CO3	L1
	UNIT-IV			
8. a)	Explain functions of financial management.	6M	CO4	L4
b)	3,			
	brief?	6M	CO4	L1
	OR			
9. a)	Describe concept of working capital.	6M	CO4	L1
b)	Differentiate between Payback Period and Accounting			
	Rate of Return methods of investment analysis.	6M	CO4	L4
	UNIT-V			
10. a)	Compare any two pricing methods.	6M	CO5	L5
b)	What are the challenges of using segmentation in			
	marketing?	6M	CO5	L1
	OR			
11.	Discuss various stages of Product Life Cycle and explain what steps companies will initiate in the decline			
	stage?	12M	CO5	L5
	*** End ***			

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II B.Tech. I Seme	ster Reg	gula	r & S	Supp	olen	nent	ary	Exa	min	atioi	ns De	ecen	nber 20	23	
(	Object	Orie	ente	ed P	rog	ram	nmir	ng u	sing	g Ja	va				
•	commor	CSE	, Ala	&DS,	Al8	ιML,	CSE	(AI) (	and	CSE	(DS))		0.11		
Max. Marks: 70				*	***	****						lin	ne: 3 Ho	urs	
Note: 1. Question P	aper con	sists	of tv	vo p	arts	(Part	: <b>-A</b> aı	nd <b>Pa</b>	art-B	)					
2. In Part-A, e	•			•		•				•					
3. Answer <b>ALI</b>	the que	stion	s in I	Part-	<b>A</b> ar	nd <b>Pa</b>	rt-B								
					<u>PAR</u>										
			(Co	mpu	llsor	y qu	estio	n)							
1. Answer <b>all</b> the fo	•						`	5 X 2	= 10	)M )			СО	BL	
a) Describe the	•	•	•										1	L1	
b) List at least to			•				spate	ch					2	L1	
c) Identify at lea									۸۱/۸			. :	3	L2	
<ul><li>d) Show the app</li><li>e) Define "String</li></ul>		•					mex	lOIJ	AVA	prog	IIamii	iirig	4 5	L2 L3	
e) Define "String	TOKETIIZE	FI VVI	ша		SIIIP PAR	•							3	LJ	
Answer five ques	stions by	cho	osin				n fro	om e	ach :	unit (	(5 x <sup>-</sup>	12 = 6	0 Marks	)	
4	,			9							(	-	Marks	•	В
					UN	IIT-I									
Describe the wo	rking me	chani	ism c	of co			with a	a sup	porte	ed pr	ogran	n	12M	1	L
	Ü					OR .		•	•	•	Ū				
Discuss the im	portance	of '	'this"	key	word	d an	d "fii	nalize	ا "()	meth	od w	ith a			
program.													12M	1	L
						IIT-II									
Examine the ne	cessity ar	nd ap	plica	tion			d ove	rridin	g wit	h an	exan	nple.	12M	2	L:
Observe that a shore		•	U	- 1 1		OR .	20.				<b>c</b> :				
Show the advarue methods.	itage of	using	tne	Strir	ig ci	ass v	with a	a mir	nımur	n or	Tive	string	12M	2	L
motriodo.					UN	IT-III							12.11	_	_
Discuss the con	cept of b	uilt-in	and	usei				ages	. Wri	te a ı	orogra	am to			
create user-defi	•						•	aguu		.0 4 1	3. og. (		12M	2	L
		_			(	OR .									
Explain the wor	•			exc	eptio	n ha	ndlin	g wit	h a s	amp	le co	de by			
highlighting the	nested try	/ bloc	cks.										12M	2	L
						IT-IV									
Explain the life of	cycle of Ja	ava tl	nread	om b			nea	t diag	gram.				12M	3	L
Evolain about th	o vorious	tuno	o of	ovoil		DR wilde	ordo	with	0.00	mnla	nroo	ırom	12M	3	L
Explain about th	le various	гуре	:S UI	avali			Jaius	WILII	a 5a	пріє	prog	liaiii.	I Z IVI	3	L
a) Illustrate the imp	ortant fo	aturo	e of	Δrray		class	: Mith	eam	nla r	roar	am		6M	4	L
,				•						•	alli.			-	
b) Explain about La	ambua E	vhies	SIUII	o WILI		iable <b>DR</b>	cxal	iihie	prog	ıalil.			6M	4	L
Explain how the	LinkedLis	st wo	rks. \	Vrite			code	e with	am	inimı	ım of	three			
methods of Java					J. 50						5.		12M	4	L
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Code: 20AS33T  Il B.Tech. I Semester Regular & Supplementary Examinations December 2023  Computer System Architecture (Common to CSE, Al&DS, Al&ML, CSE(Al) and CSE(DS))  Max. Marks: 70  Time: 3 Hours  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) columns and part-B PART-B (Compulsory question) 2. Write the following short answer questions (5 X 2 = 10M) columns and part-B PART-B (Compulsory question) 3. Explain floating point representation with example? columns and point representation with example? columns and point representation with example? columns are the limitation formats. columns and point representation with example? columns are the limitation formats. columns are decided and point representation with example? columns are the limitations of marcoprocessor? columns are decided and point representation with example and point representation with example? columns are the limitations of Karnaugh map simplification? What are the limitations of Karnaugh map based digital logic circuit simplification? How do you mitigate the same? complement:  i) Subtract the following unsigned numbers using two's complement:  i) 11110011–11000011 ii) 10001101–11111000 columns complement:  i) 11110011–11000011 ii) 10001101–111111000 columns columns are decided and point representation of the computer system. columns are decided and point representation of the computer system. columns are represented to a D flip flop with an inverter between J and K. columns columns and columns are represented to a D flip flop with an inverter between J and K. columns columns are represented to a D flip flop with an inverter between J and K. columns columns are represented to a D flip flop with an inverter between J and K. columns columns are represented to a D flip flop with an inverter between J and K. columns columns are represented t	На	II Ticket Number:														1
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(Common to CSE, AI&DS, AI&ML, CSE(AI) and CSE(DS)    Max. Marks: 70   Time: 3 Hours  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 floating point representation with example?   CO1   L3    b) Write the two forms of boolean expression   CO2   L2    c) Write the instruction formats.   CO1   L2    d) List the components of a microprocessor?   CO2   L4    e) What is virtual memory?   CO2   L3    PART-B Answer five questions by choosing one question from each unit (5 x 12 = 60 Marks)    What is the basis behind Karnaugh map simplification? What are the limitations of Karnaugh map based digital logic circuit simplification? How do you mitigate the same?   6M   CO1   L2    b) Subtract the following unsigned numbers using two's complement:   i) 11110011–11000011   ii) 10001101–11111000   6M   CO2   L3    OR  a) Explain the functional architecture of the computer system.   6M   CO1   L2    D) Find 2's complement of the following   (i) 10010   (ii) 111000   (iii) 0101010   (iv) 111111   6M   CO2   L3    UNIT-II   (ii) 110011   6M   CO2   L3    UNIT-II   (iii) 111010   (iii) 111000   (iii) 0101010   (iv) 111111   (iv) 1	II B	.Tech. I Semeste	_			•						ons De	ece	mber 2	2023	
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PART-A (Compulsory question)  1. Answer all the following short answer questions (5 X 2 = 10M)  a) Explain floating point representation with example?  CO1 L3 b) Write the two forms of boolean expression  CO2 L2 c) Write the instruction formats.  CO1 L2 d) List the components of a microprocessor?  CO2 L4 e) What is virtual memory?  CO2 L3  PART-B  Answer five questions by choosing one question from each unit (5 x 12 = 60 Marks)  Marks CO BL  UNIT-I  a) What is the basis behind Karnaugh map simplification? What are the limitations of Karnaugh map based digital logic circuit simplification? How do you mitigate the same?  b) Subtract the following unsigned numbers using two's complement: i) 11110011-11000011 ii) 10001101-11111000  OR  a) Explain the functional architecture of the computer system.  Find 2's complement of the following  (i) 10010 (ii) 111000 (iii) 0101010 (iv) 111111  a) Show that a JK flip-flop can be converted to a D flip flop with an inverter between J and K.  b) What is register? Explain the function of bidirectional shift register with parallel load with the help of diagram.  6M CO2 L3		•	•						ł.							
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5.	a)	Compare combinational circuit and sequential circuit	6M	CO1	L4
	b)	Draw and explain the full adder using 8 to 1 multiplexer.	6M	CO2	L2
		UNIT-III			
6.	a)	Write the hardware implementation for Booth's multiplication			
		algorithm.	6M	CO2	L2
	b)	Compare direct and indirect addressing modes.	6M	CO2	L4
		OR			
7.	a)	Derive and explain an algorithm for adding and subtracting			
		2 floating point binary numbers	6M	CO2	L2
	b)	Explain hardware implementation of binary multiplier with			
		example.	6M	CO2	L1
		UNIT-IV			
8.	a)	Explain RAM and ROM memories in suitable diagrams	6M	CO1	L2
	b)	Explain the address translation in virtual memory	6M	CO2	L2
		OR			
9.	a)	Explain different types of mapping functions in cache memory.	6M	CO1	L3
	b)	Write short notes on Hardwired Control and Micro-			
		programmed Control	6M	CO2	L4
		UNIT-V			
10.		What is Direct Memory Access (DMA)? What is the need			
		for DMA? Explain the working of DMA. Also mention its			
		advantages.	12M	CO2	L4
		OR			
11.	a)	What are interrupts? Why do we need them? How			
		interrupts are commonly handled? Assuming that currently			
		an instruction is in its decode cycle and an interrupt has			
		arrived. Are we going to stop the current instruction there	GN/I	000	
	L١	itself? If not, why?		CO2	
	D)	Explain the functions of typical input-output interface.  *** End ***	6IVI	CO1	L2
		EIIU · · ·			

Page **2** of **2** 

Hall Ticket	Number:				
			R-20		
<b>Code: 20A5</b> II B.Tech. I	Semester Regular & Supplementary Exam  Database Management Syste  (Common CSE, AI&DS, AI&ML, CSE(AI) ar	ems	cember :	2023	
Max. Marks	: 70 ******		Time: 3 I	Hours	
2. In Pa	stion Paper consists of two parts ( <b>Part-A</b> and <b>Par</b> ter).  Int-A, each question carries <b>Two marks.</b> Int-A and <b>Part-B</b> Int-A  (Compulsory question)	t-B)			
1. Answer <b>al</b>	If the following short answer questions	(5 X 2 = 10	M )	СО	BL
a) What are	the applications of database system?		(	01	L1
b) Define a l	Key		(	002	L1
c) Explain H	aving Clause		(	03	L2
•	antages of Normalizing Database schema	l	(	CO4	L2
e) What is m	neant by Concurrency		(	CO5	L2
Answer fiv	PART-B  ve questions by choosing one question from each	ch unit ( 5 x 12	P = 60 Mar	ks )	
711101101 111	o quodiono by enecoming one quodicin nom out	a ( • x 12	Marks	CO	BL
	UNIT-I				
,	are and Contrast DROP and Truncate?		6M	CO1	
b) What	are the Responsibilities of Database Adn	ninistrator?	6M	CO1	L1
	OR				
, .	n DDL, DML and TCL	_		CO1	
b) Comp	are and Contrast File System and DBMS  UNIT-II	3?	6M	CO1	L2
4. a) Explai examp	n one-one, one-many many-many relation oles	onships with	6M	CO2	L3
b) Explai	n any 3 key constrains		6M	CO2	L3
	OR				
5. a) Analyz	ze Various types of Relations in E-R mod	lel	6M	CO2	L4
b) Explaii	n Various types of attributes in E-R model w	rith examples	6 6M	CO2	L3

Code: 20A531T

## **UNIT-III**

6. Consider the following relations Sailors(sid, sname, rating, age) Boats(bid, bname, color) Reserves(sid, bid, day) Write the SQL statements for the following: Find the names of sailors who have reserved a Red (i) boat. (ii) List all the Red Color or Green Color Boats. Find the names of sailors who have reserved Red (iii) and Green boat. Find the names of sailors who have reserved Red (iv) or a White boat. (v) List number boats reserved by each sailor. (vi) List all sailors names 12M CO3 L4 OR Discuss various types of JOINS in Relational Database with 6M co3 examples L3 6M co3 b) Discuss about sub queries and Correlated Queries L3 **UNIT-IV** 8. a) Explain Armstrong's Axioms in Functional Dependency in **DBMS** 6M co4 L2 6M CO4 b) Explain Lossless Decomposition L3 OR 9. a) Explain 1NF and 2NF with examples 6M co4 L3 b) Explain 3NF and BCNF with examples 6M co4 L3 **UNIT-V** 10. a) What are Properties of Transaction 6M CO5 L2 b) Why concurrency control is needed demonstrate with an 6M CO5 example L3 OR 11. a) Explain Lock Based Concurrency Control 6M CO5 L3 b) Write a Transaction and explain each statement Include all TCL statements 6M CO5 L4 \*\*\* End \*\*\*