	USN												CS54
			В. Е.	De	gre	ee (A	۱u	tono	mou	ıs) F	if	th Semester End Examination (SEE), Dec 2018/Jan	2019
										A 750 A	_		
									D.	ATA	ИВ	SASE MANAGEMENT SYSTEM	
											(	Model Question Paper - 1)	
Time	: 3 Ho	nirc	l								(.		n Marks: 100
111110	. 5 110	uis	ı									[ Maximum	1 Wat KS. 100
						In	st	ruct	ions	to s	tu	dents:	
										-			
						1. 2.						YE FULL questions. Y ONE from Question No.1 and 2	
						3.						Y ONE from Question No.1 and 2 Y ONE from Question No.3 and 4	
						4.						Y ONE from Question No.5 and 6	
						5.						Y ONE from Question No.7 and 8	
						6.		Aı	nswe	er A	N	Y ONE from Question No.9 and 10	
	a)		Defin	e th	e f	ollov	wi	ng te	rms				10 Marks
						SMS		•					
1.				2. ]									
				3. I 4. I		tada	ıta						
						nty ribu	te						
	1.1							ram	for s	tude	ent	database considering at least minimum 5 entities	10 Marks
	<b>b</b> )												
			XX 71 . 1			1.1		11		- 1	_	OR	1035 1
2	a)		With levels						ram	expl	an	n the DBMS architecture. Also discuss the 3 different	10 Marks
	<b>b</b> )								etch	the o	dit	fferent phases of database design	10 Marks
3.	a)											a model, explain the concept of primary keys and	10 Marks
	ĺ		Foreig	gn k	ey	s. Ill	us	trate	you	r ans	sw	ver with examples.	
	<b>b</b> )				he	follo	w	ing 1	elati	onal	l a	lgebra operations. Illustrate each of them with an	10 Marks
			exam		C I T	LEC	T						
			2			OJE		г					
			3					ENCI	Е				
			4	. 1	UN	IION	1						
												OR	
4	a)								grity	and	re	ferential integrity constraints. Why each one is	06 Marks
	<b>b</b> )	$\dashv$	consid			_			ainte	kor	V C	constraints and constraints on NULL values.	07 Marks
	, D)		Lapia	iii u	iOII	iaiii	CO	msu	amis	, KC	y C	constraints and constraints on WOLL values.	07 Marks
	c)		With	the	hel	lp of	ex	kamp	oles,	expl	lai	in the different set operations in relational algebra.	07 Marks
5	a)		Consi	der	the	e fol	lov	wing	rela	tion	sc	chema	10 Marks
			Projec								ıar	rge)	
			Emplo										
			Assig							ha f		lowing	
												lowing: are working on all the projects.	
												are not working on project number 2K.	
												who are working in the same project as employee	
			name						-				
			(iv) L	ist t	he	nam	ies	of e	mpl	oyee	es	who are not working in any project.	

1. \		
<b>b</b> )	What do you mean by JOIN in SQL? Explain various JOIN operations in SQL with an example.	10 Marks
a)	Explain more complex SQL queries with examples.	10 Marks
<b>b</b> )	Briefly explain Views in SQL along with the syntax. Discuss the problems that may arise when one attempts to update a view. How are views practically implemented?	10 Marks
a)	What is the need for normalization? Explain 1NF, 2NF, 3NF with examples.	10 Marks
b)	Consider the universal relation $R=\{A,B,C,D,E,F,G,H,I,J\}$ and the set of functional dependencies $F=\{\{A,B\}\rightarrow \{C\}, \{A\}\rightarrow \{D,E\}, \{B\}\rightarrow \{F\}, \{F\}\rightarrow \{G,H\}, \{D\}\rightarrow \{I.J\}\}\}$ . What is the key for R? Decompose R into 2 NF and then 3 NF relations.	10 Marks
	OR	
a)	Consider the following relations: CAR_SALE(Car_no, Date_sold, Salesman_no, Commission_%, Discount) (Assume a car can be sold by multiple sales man and hence primary key is {car_no, Salesman_no}) Additional dependencies are:date_sold->Discount_amt and Salesman_no->Commission_%. i. Is this relation in 1NF, 2NF, 3NF? Why or why not? ii How would you normalize this completely?	12 Marks
<b>b</b> )	Define Boyce-Codd normal form. How does it differ from 3 NF? Why is it considered a stronger form of 3 NF?	08 Marks
a)	Explain a mechanism of concurrency control that uses time stamping with the help of an example	10 Marks
<b>b</b> )	Discuss the problems of deadlock and starvation and different approaches to deal with these problems.	10 Marks
	OR	
a)	Explain Multiple-granularity locking with example and also explain under what circumstances is it used.	10 Marks
b)	Prove that Strict two Phase locking protocol guarantees Strict Schedule with example	10 Marks
	b) a) b) a) b) a)	a) Explain more complex SQL queries with examples.  b) Briefly explain Views in SQL along with the syntax. Discuss the problems that may arise when one attempts to update a view. How are views practically implemented?  a) What is the need for normalization? Explain 1NF, 2NF, 3NF with examples.  b) Consider the universal relation R={A,B,C,D,E,F,G,H,I,J} and the set of functional dependencies F={{A,B}→{C}, {A}→{D,E}, {B}→{F}, {F}→{G,H}, {D}→{I,J}}. What is the key for R? Decompose R into 2 NF and then 3 NF relations.  OR  a) Consider the following relations:    CAR_SALE(Car_no, Date_sold, Salesman_no, Commission_%, Discount) (Assume a car can be sold by multiple sales man and hence primary key is {car_no, Salesman_no}) Additional dependencies are:date_sold->Discount_amt and Salesman_no->Commission_%.  i. Is this relation in 1NF, 2NF, 3NF? Why or why not?    ii How would you normalize this completely?  b) Define Boyce-Codd normal form. How does it differ from 3 NF? Why is it considered a stronger form of 3 NF?  a) Explain a mechanism of concurrency control that uses time stamping with the help of an example  b) Discuss the problems of deadlock and starvation and different approaches to deal with these problems.  OR

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		]	В. Е.	Deg	ree (	A	uton	omo	us) F	ìfth	Semester End Examination (SEE), Dec 2018/J	an 2019
								D	ATA	BA	SE MANAGEMENT SYSTEM	
										(M	Iodel Question Paper - 2)	
Time	: 3 Ho	urs ]									[ Maxin	num Marks: 100
					Ī	ns	truc	tions	to s	tud	ents:	
					1 2 3 4 5 6	;. ;.	A A A	answ answ answ answ	er A er A er A er A	NY NY NY NY	ONE from Question No.1 and 2 ONE from Question No.3 and 4 ONE from Question No.5 and 6 ONE from Question No.7 and 8 ONE from Question No.9 and 10	
1.	a)	E	ring	out t	he in	np	orta	nt ad	vanta	iges	and disadvantages of DBMS over file system.	06 Marks
	<b>b</b> )		efine ttribu								ith respect to ER model. List different types of	08 Marks
	c)										and languages used at each level.	06 Marks
2	9)	v	Vith o	. noo	t blo	olz	dia	rom	ovnl	oin t	OR the DBMS architecture. Also discuss the 3 differer	nt 10 Marks
4	a)		viui a evels					grain	expi	aiii t	the DDIVIS architecture. Also discuss the 5 differen	it 10 Warks
	b)	Γ	)raw	the E	ER D	ia	gran	for l	Bank	dat	abase considering at least minimum 5 entities	10 Marks
3.	a) b)		Emplo Depar Dept_ Project Works Depen Vrite 1. I 2. I 3. I 4. I Define	timent Local transfer of the Constitution of t	(Natt (Distriction aame (ESS)	ma (I , F SN SN es he ar oje	e, SS me, Onum Onum I, Pn I, Pn I in re in re ects a nan with	N, A Dnur nber, nber, o, Ho ependelation ne and f empton wines of an ex	ddre nber, Dloca Ploca ploca plent_ nal a d ado bloye hich f emp	ss, S MC cation nam lgeb llress es w	a company database. Sex, Salary, Dno) GR SSN, MGRSTART DATE) ons) n, Dnum) ne, Sex, Ddate, Relationship) ora to s of all employees who work for the research who work on all projects controlled by department ployee Smith is working. eees who have no dependents. or each	10 Marks
			2. I	Relat	ion s ion s			L				
								e sch	<u>em</u> a.	<u>.                                    </u>		
											OR	
4	a)										model, explain the concept of primary keys and	10 Marks
	<b>b</b> )	Γ		ss the		10.	ving				r with examples. The perfect the second of t	10 Marks
			2. 3. 4.	Pl D	ROJI IFFE NIO	EC ER	T	Œ				

			(Page 2 d
5	a)	Explain Insert, Delete & Update Operation with example.	08 Marks
	<b>b</b> )	What do you mean by JOIN? Explain various JOIN operations in SQL with an example.	08 Marks
	c)	Explain Set theoretic operations used in SQL.	04 Marks
	1	OR	
6	a)	List the data types that are allowed for SQL attributes.examples.	04 Marks
	b)	Consider the following relation schema Project(P_No, P_Name, P_Incharge) Employee(E_No, E_Name) Assigned_to(P_No, E_No) Write the SQL Quires for the following: (i) List details of employees who are working on all the projects. (ii) List E_No of employees who are not working on project number 2K. (iii) List the names of employees who are working in the same project as employee named 'Tom'. (iv) List the names of employees who are not working in any project.	08 Marks
	c)	How are Triggers and Assertions are defined in SQL explain with example.	08 Marks
7.	a)	State the informal guidelines for relational schema design. Illustrate how violation of these guidelines may be harmful.	10 Marks
	b)	Explain Multi-valued Dependencies, Fourth Normal Form, Join Dependencies and Fifth Normal Form with examples.	10 Marks
		OR	
8	a)	What is the need for normalization? Explain 1NF, 2NF, 3NF with examples.	10 Marks
	<b>b</b> )	Consider the universal relation $R=\{A,B,C,D,E,F,G,H,I,J\}$ and the set of functional dependencies $F=\{\{A,B\}\rightarrow \{C\}, \{A\}\rightarrow \{D,E\}, \{B\}\rightarrow \{F\}, \{F\}\rightarrow \{G,H\}, \{D\}\rightarrow \{I,J\}\}\}$ . What is the key for R? Decompose R into 2 NF and then 3 NF relations.	10 Marks
9.	a)	Discuss the ACID properties.	04 Marks
	b)	Which of the following schedules is (conflict) serializable? For each serializable schedule, determine the equivalent serial schedules.  1. r1(x); r3(x); w1(x); r2(x); w3(x);  2. r1(x); r3(x); w3(x); w1(x); r2(x);  3. r3(x); r2(x); w3(x); r1(x); w1(x);  4. r3(x); r2(x); r1(x); w3(x); w1(x);	12 Marks
	c)	What is a schedule (history)? Define the concept of strict schedules.	04 Marks
		OR	
10.	a)	Explain the two phase locking protocol with examples and along with its advantages.	08 Marks
	<b>b</b> )	Explain time stamp ordering algorithm with example.	08 Marks
	c)	Explain Serializability with example. How can serializability be ensured? Do you need to restrict concurrent execution of transaction to ensure serializability? Justify your answer.	04 Marks

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ι	JSN		CS54
В.	E. Deg	ree (Autonomous) Fifth Semester End Examination (SEE), Dec 20	017/Jan 2018
		DATABASE MANAGEMENT SYSTEM	
		(Model Question Paper - 3)	
Tim	e: 3 Ho	<u> </u>	[ Maximum M
		Instructions to students:	
		<ol> <li>Answer FIVE FULL questions.</li> <li>Question No. 1, 2 and 5 are COMPULSORY</li> <li>Answer ANY ONE from Question No.3 and 4</li> <li>Answer ANY ONE from Question No. 6 and 7</li> </ol>	
	I	Pring out the important adventages and disadventages of DPMS	06 Marks
1.	a)	Bring out the important advantages and disadvantages of DBMS over file system.	UO IVIAI KS
	b)	Define entity, entity set, attribute with respect to ER model. List different types of attributes along with their symbols.	08 Marks
	c)	Explain three schema architecture and languages used at each level.	06 Marks
2.	a)	Consider the following schema for a company database.  Employee (Name, SSN, Address, Sex, Salary, Dno) Department (Dname, Dnumber, MGR SSN, MGRSTART DATE) Dept_Location (Dnumber, Dlocations) Project (Pname, Pnumber, Plocation, Dnum) Works_on (ESSN, Pno, Hours) Dependent (ESSN, Dependent_name, Sex, Ddate, Relationship) Write the queries in relational algebra to  1. Retrieve the name and address of all employees who work for the research department  2. Find the name of employees who work on all projects controlled by department number 5.  3. List all projects on which employee Smith is working.  4. Retrieve the names of employees who have no dependents.	10 Marks
	b)	Define the terms with an example for each 1. Domain 2. Relation schema 3. Relation state 4. Relation database schema.	10 Marks
3	a)	Explain Insert, Delete & Update Operation with example.	08 Marks
	b)	What do you mean by JOIN? Explain various JOIN operations in SQL with an example.	08 Marks
	c)	Explain Set theoretic operations used in SQL.	04 Marks
	1	OR	
4	a)	List the data types that are allowed for SQL attributes.examples.	04 Marks

(Page 2 of 2)

			(raye z
	b)	Write the SQL statement for Question no: 2 (A).	08 Marks
	c)	How are Triggers and Assertions are defined in SQL explain with example.	08 Marks
<b>)</b> .	a)	State the informal guidelines for relational schema design. Illustrate how violation of these guidelines may be harmful.	10 Marks
	b)	Explain Multi-valued Dependencies, Fourth Normal Form, Join Dependencies and Fifth Normal Form with examples.	10 Marks
•	a)	Discuss the ACID properties.	04 Marks
	b)	Which of the following schedules is (conflict) serializable? For each serializable schedule, determine the equivalent serial schedules.  1. r1(x); r3(x); w1(x); r2(x); w3(x); 2. r1(x); r3(x); w3(x); w1(x); r2(x); 3. r3(x); r2(x); w3(x); r1(x); w1(x); 4. r3(x); r2(x); r1(x); w3(x); w1(x);	12 Marks
	c)	What is a schedule (history)? Define the concept of strict schedules.	04 Marks
		OR	
•	a)	Explain the two phase locking protocol with examples and along with its advantages.	08 Marks
	b)	Explain time stamp ordering algorithm with example.	08 Marks
	c)	Explain Serializability with example. How can serializability be ensured? Do you need to restrict concurrent execution of transaction to ensure serializability? Justify your answer.	04 Marks

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