7/6/18

Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India
(Autonomous College Affiliated to University of Mumbai)

End Semester Examination
April – May 2018

Max. Marks: 100 Duration: 3Hrs
Class:S.E. Semester:IV
Course Code:IT43 AND CE42 Branch:IT AND COMPUTER
Name of the Course: Database Management systems

Instruction:
(1) All questions are compulsary
(2) Draw neat diagrams
(3) Assume suitable data if necessary

Synoptic

QNo	Question	Marks	CO
Q 1 a) Ans:	Purpose for converting weak entity set – 2Marks Reason of weak entity set -3Marks We have weak entities for several reasons: 1) We want to avoid the data duplication and consequent possible inconsistencies caused by duplicating the key of the strong entity. 2) Weak entities reflect the logical structure of an entity being dependent on another entity. 3) Weak entities can be deleted automatically when their strong entity is deleted. 4) Weak entities can be stored physically with their strong entities.	5	CO1
b) Ans:	Aim in specifying database constraint –to control the invalid data entry in a column.-1Mark Any Four Constraints –Carry 1 mark each (1X 4=4Marks) 1) Primary Key 2) Foreign Key 3) Null 4) Not Null 5) Unique 6) Default 7) Check	5	CO3
c)	Definition with syntax carry 1 marks each (1 X 5 =5Marks)	5	CO3
d)	Definition of BCNF -2Marks Example -3Marks	5	CO4

Q2 a)	programming with SQL- 2Marks stored Procedures (or PL/SQL)-2Marks Advantages - 2Marks 1) Support for SQL 2) Support for object-oriented programming 3) Higher productivity 4) Full Portability 5) Security 6) Better performance Example -4 Marks OR Defining virtual relation-2marks Syntax and creation of view-4marks With example give proper explanation on Reason– 4Marks	10	CO1
b) Ans:	Diagram of Storage structure with all the sub-block -4 Marks Functionality of two sub-block from each components carry 1 Marks each (1X4=4 Marks) Any two user - carry 1 Marks each (2X1=2 Marks) OR Any ten from the following codd's rule carry 1 marks each (1 X10=10) 1) The information Rule 2)Guaranteed Access Rule 3) Systematic Treatment of Null values 4) Dynamic on-line Catalog Based on the Relational Model 5) Comprehensive Data sublanguage rule 6) View Updating rule 7) High level Insert, Update and Delete 8) Physical Data Independence 9) Logical Data Independence 10) Integrity Independence 11) Distribution Independence 12) Non subversion Rule	10	CO1
Q3 a)	Each Query carry 2Marks	10	CO2

a) Ans:	Find the product names whose order is not placed. select pid, pname from product where pid not in(select pid from orderdetails)		
b) Ans:	lists the product names if it finds ANY records in the OrderDetails table that quantity = 10. SELECT pname FROM product WHERE pid = ANY (SELECT pid FROM Orderdetails WHERE Quantity = 10)		
c) Ans:	lists the product names if ALL the records in the OrderDetails table has quantity greater than 30. SELECT pname FROM Products WHERE pid = ALL (SELECT pid FROM Orderdetails WHERE Quantity > 30) Selects all products with a price BETWEEN 40 and 50. SELECT * FROM Products WHERE Price BETWEEN 40 AND 50		
d) Ans:	lists the number of supplier in each country, sorted high to low SELECT COUNT(SID), Country FROM supplier GROUP BY Country ORDER BY COUNT(SID) DESC;		
e) Ans:	lists the number of supplier in each country, sorted high to low SELECT COUNT(SID), Country FROM supplier GROUP BY Country ORDER BY COUNT(SID) DESC;		
b) a)	1 marks for each Strong entities Employee, Department, Project, with correct attributes and constrains identified (eg – primary	10	CO1

c)	and DEPARTMENT , Works-on between EMPLOYEE and PORJECT, Recursive Relation Supervision between EMPLOYEE (5Marks) One for weak entity set and One for identifying relationship set Diagram : 2 M		
Q4 a)	Purpose of trigger – 2Marks It consist of a code which defines some action that the database should execute when some database related event occur. Types of triggers -3Marks 1) Row triggers 2) Statement triggers 3) Before and After triggers Example of triggers with proper syntax -(2X2.5)marks OR Defining Database security -3Marks Threads to database - 3Marks Control measures -4Marks	10	CO3
b)	Why Normalization required? Define First, Second And Third Normal Form. Show the Conversion of following employee database Upto Third normal form Employee(eno,ename,Jobno,city,Jobstartdate,JobFinishdate,salary)	10	CO4

eno	Ename	Jobno	City	Jobstart	JobFinish	salary
E101	Ramesh	J501	Mumbai	1/1/2000	5/2/2000	50000
		J502	Delhi	2/5/2015	5/7/2015	60000
E102	Suresh	J605	Pune	8/1/2010	5/2/2010	75000
		J609	Mumbai	5/2/2010	6/8/2010	56000

Purpose of Normalization -1marks
Definition of each normal forma carry 1 marks –(1X 3=3Marks)
Conversion of given schema into First, Second and third normal form carry 2Marks each (2X 3=6Marks)

OR

Total No of Candidate Key's are (PS,SQ,ST,SU) each carry one marks

	(1 X4 =4 Marks) Proving or disproving the inference rules with proper reasoning of each rule carry 2 marks each (3X2=6marks)		
Q5 a)	Description on serializability schedule -2Marks Example of serial schedule-3Marks Description on conflict serializability schedule -1Marks Steps to check conflict serializable -4 Marks	10	CO5
b)	Description of deadlock detection -5 Marks Key point – Wait for graph, Cycle of transaction, deadlock condition, transactions involved in deadlock Description of deadlock Recovery -5 Marks Key point – recovery process ,selection of Vitim, Rollback, Starvation	10	CO5

Overall System Structure