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INSTITUTE FOR HUMAN RESOURCES DEVELOPMENT
DEPARTMENT OF COMPUTER SCIENCE

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2009/10 SECOND SEMESTER UNIVERSITY EXAMINATION

TITLE OF THE PAPER: DATABASE DESIGN

COURSE CODE: CSC422 TIME ALLOWED: 2HOURS 30MINUTES

INSTRUCTION : ATTEMPT ANY FOUR QUESTIONS

Question One

Consider the following relational schemas and use them to answer below questions

product(maker, model, type)
personal_Computer(model, speed, ram, hdd, price)
laptop(model, speed, ram, hdd, screen, price)
printer(model, colour, type, price)

- (i) Find the model number, memory size and screen size for laptops costing more than ₦2000.00
- (ii) Find the model number and hard disk size for those personal computers that have a speed of 3.0 and a price less than ₦1000.00
- (iii) Select each laptop made by manufacturer D. Add one inch to the screen size and subtract ₦200.00 from the price
- (iv) Find the manufacturers of laptop
- (v) Find all the type of printers that the price is more than the average cost price

Question Two

Study and create this relation by taking into consideration the following constraints

Project(project_Number, project_Person, project_Remuneration, project_Start, project_End)

- (i) Project start date must be before the project end date
- (ii) Minimum remuneration for any project is ₦5000.00
- (iii) Project number should not be empty and the same
- (iv) At least two persons must participate in a project

Question Three

Consider this relation

product(maker, model, price, type) and functional dependencies
maker, model → price
price → type
type → maker

- (i) What are all the keys of relational product?
- (ii) Explain whether or not the relation schema violate 3NF

Question Four

Convert the relational schemas into entity relationship diagram

Booking(ssNO_Customer, name_Customer, number_Flight, day_Flight, row, seat)

Customer(ssNo, name, address, phone)

Flight(number, day, aircraft)

Question Five

employee

e_Number	e_Name	Mgr_No	dept	Salary
2351	Bello	5114	phy	5000
5114	John	4016	csc	6000
4016	Bintu	2351	sts	4000
5005	Adam	5178	csc	6500

supply

Supplier	dept	Item	Vol
S1	csc	Pen	100
S2	mts	Cabinet	4
S3	sts	Pad	2
S1	csc	Ink	20
S2	ssc	Ruler	12

supplier

s_NO	s_Name
S1	Foljol
S2	Infinite
S3	Hansa

dept

Dept	floor
phy	3
mts	2
sts	2
csc	1

item

i_Name	type	Color
Pad	A	Yellow
Cabinet	B	Gray
Pen	B	Red

Use the above tables, write out the results that the following SQL statements would produce

(i) Select distinct mgr, dept
From employee
Where salary >= 5000 and dept =
"csc"

(ii) Select dept, count(*)
From emp loyee
Dept <> "sts"
Groupby dept
Having count(*) >=2

(iii) Select e_Name
From employee, dept
Where employee.dept =dept.dept
And dept.floor = 2

(iv) Select distinct s_Name
From supplier
Where s_No in(select supplier
From supply
Where item =
"pad")

Question Six

Design a database for a bank, including information about customers and their accounts. Information about a customer includes their name, address, phone, and customer id. Account have numbers, types (e.g., saving, checking) and balances. Also record the customer(s) who own an account. Draw the entity relationship diagram for this database. Be sure to include arrows where appropriate to indicate the multiplicity of a relationship.