NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SCHOOL OF SCIENCE AND TECHNOLOGY
MAY/JUNE 2012 EXAMINATION

CIT 743 – DATABASE MANAGEMENT SYSTEMS
Time Allowed: 2 Hours
Instruction: Answer Any Four Questions

1a. What are the basic steps in designing a database application?

b. State five advantages of using a Database management System?

2. Explain the following Database recovery terms:

i. Before Image

ii. After image

iii. Rollback

iv. Roll forward

v. Checkpoints

3. Let us assume that the following staff table (STAFF) has the following records, use the appropriate selection operator(s) to:

Name	Room	Department	Designation
Ajayi	101	CIT	Professor
Chidi	201	ECO	Lecturer I
Musa	202	ECO	Professor
Bello	301	CIT	Senior Lecturer
Ajayi	220	ACC	Senior Lecturer

a. Select only those Staff in the CIT department:

$\sigma_{\text{Dept = 'CIT'}}$ (STAFF) 4 marks

b. Select only those Staff with last name Ajayi who are professors:

$\sigma_{\text{Name = 'Ajayi'} \wedge \text{Designation = 'Professor'}}$ (STAFF) 7 marks

c. Select only those Staff who are either Professors or in the Economics department:

$\sigma_{\text{Designation = 'Professor'} \vee \text{Department = 'ECO'}}$ (STAFF) 7 marks

d. Select only those Employees who are not in the CIT department or Lecturer I:

$\sigma_{\neg(\text{Designation = 'Lecturer I'} \vee \text{Department = 'CIT'})}$ (STAFF) 7 marks

4a. How would you ensure database security at design level?

b. Write SQL statement that grant authorization to database users shown in the table

Subject	Object	Action	Constraint
Rasheed	Employee	Read	None
Rasheed	Employee	Insert	None
Rasheed	Employee	Modify	None
Rasheed	Employee	Delete	None
Bola	Employee	Read	Salary < 50,000
Sola	PurchaseOrder	Insert	Total < 1,000
Sola	PurchaseOrder	Modify	Total < 1,000
Chidi	Employee	Read	None

5a. What do you understand by the term database architecture?

b. Write on the following database terms

i. Application Logic

ii. One-tier Database Architecture

iii. Two-tier Database Architecture

iv. Three-tier Database Architecture

6. Briefly explain the following terms

i. Union
ii. Intersection
iii. Difference
iv. Cartesian product.
v. Selection
vi. Projection
vii. Join
viii. Division