PWANI UNIVERSITY

UNIVERSITY EXAMINATIONS 2013

YEAR 3 SEMESTER 1 EXAMINATION FOR BACHELOR OF COMMERCE

BMS 303: DATABASE DESIGN AND MANAGEMENT

DATE: DECEMBER 2013   **TIME: 2 HOURs**

INSTRUCTIONS: Aswer Question ONE and any TWO questions.

QUESTION 1 (40 Marks)

a. Define the following terms:

   i.   Database
   ii. Database Management Software (DBMS)
   iii. Normalization   (6 Marks)

b. Distinguish between functional dependency and transitive dependency   (2 Marks)

 c. The following is a structure of a table named PATIENT. Use it to answer the question

that follows:

Fieldname	Datatype	Constraint
PatientNo	int(10)	Primary key
Firstname	Varchar(25)	Not Null
Lastname	Varchar(25)	Not Null
Totalcost	Decimal(10,2)	Not Null

(i) Write a SQL statement that will create the table with its associated fields   (4 Marks)

(ii) Insert into the table the following record 1001, Judith, Kaingi, 550.00   (2 Marks)

(iii) List any five integrity constraints is SQL   (5 Marks)

d. List any three types of endusers   (3 Marks)

e. Briefly describe the following properties of relation types

   i.   Degree

ii.   Role

iii.   Cardinality ratio   (6 Marks)

f. List any three commercial DBMS software's   (3 Marks)

g. Briefly describe the steps of database development   (10 Marks)

QUESTION TWO

a. Distinguish between:

   i.   logical data independence and physical data independence
   ii.   Attribute and Value set
   iii. Relationship instance and Relationship type   (6 Marks)

b. List any two roles of a database administrator(DBA)   (2 Marks)

c. With an aid of a diagram describe the four levels of ANSI-SPARK architecture   (7 Marks)

QUESTION THREE

a. Describe the components of structured Query Language   (3 Marks)

b. Explain any three advantages of DBMS   (6 Marks)

c. Given the following unnormalized form with UNF levels normalize it to 3NF   (6 Marks)

NORMALIZATION TABLE				
UNF	UNF LEVEL	1NF	2NF	3 NF
RegNo	1			
Name	1			
Course Code	1			
Course Title	1			
Unit Code	2			
Unit Title	2			
Weight	2			
Marks	2			
Result Code	2			
Result	2			

QUESTION FOUR

a. List any four disadvantages of file based system   (4 Marks)

b. Using an example distinguish between the following attributes:

i. Composite and Simple attributes
ii. Single-Valued and Multi-Valued attributes
iii. Stored, coded, or derived Attributes   (6 Marks)

c. The Furniture table below shows details of furniture stored in a database. Use it to answer the questions that follows.

ITEMCODE	ITEMNAME	QUANTITY	ITEMPRICE	STATUS
F0001	Beds	300	12000	EXCESS
F0010	Table	200	7000	EXCESS
F0003	Sofa sets	100	35000	EXCESS
F0011	Warddrobe	50	18000	REORDER
F0014	Computer desks	145	3000	EXCESS
F0002	Chairs	45	1600	REORDER

Write a SQL statement that would

i. Extract itemname of items whose status is reorder   (1 Mark)
ii. Determine the cost of each item and store them in a field named *totalcost*   (1 Mark)
iii. Extract all the details of items whose itemprice is greater than 15000   (1 Mark)
iv. Sort the items according to the itemcode in ascending order   (1 Marks)
v. Delete the item whose itemcode is F0014 from the table   (1 Mark)

QUESTION FIVE

a. Using examples outline the meaning of the following terms in relation to Entity-relationship modelling

i. Attribute
ii. Entity set   (3 Marks)

b. Highlight any three characteristics of database approach   (6 Marks)

c. With the aid of a diagram briefly describe the following database models:

i. Hierarchical model
ii. Network model
iii. Relational model   (6 marks)