**ADEKUNLE AJASIN UNIVERSITY, AKUNGBA-AKOKO**

**FACULTY OF SCIENCE**

**DEPARTMENT OF COMPUTER SCIENCE**

**2ND SEMESTER EXAMINATION – 2014/2015 SESSION**

**Course Title:** Application Package (using MySQL and PHP) **Course Code:**  CSC 424

**Course Unit:** 3 **Course Status:** Elective **Time:** 2½ hours

**Instruction:** Answer **Question 1** and **any other two (2) questions**

1a. What is your perception of ‘SQL’ as a language? How do you define the language? (2mks)

b. What is the relationship between the three arms of SQL, viz: DDL, DML and DCL? (3mks)

c. In any programming language setting, data types are very essential; likewise in database application. Do we have any such facility in MySQL? If yes, discuss them . (5mks)

d. Code to demonstrate the use of ‘ALIAS’ in MySQL (2mks)

e. Codifying, differentiate the use of UPDATE and ALTER (2mks)

f. How do you achieve removing a COLUMN/FIELD in a table? Demonstrate (2mks)

g. How is Primary Key different from Unique Key? And how is FullText (+ Boolean) different from FullText (- Boolean)? (2mks)

h. In one sensible program, demonstrate the use of these aggregate functions:

(i) sum (ii) avg (iii) max (iv) min (v) count (5mks)

i. In database application, manipulations of data take great deals of the computation. From what you have learnt in this course, what can you say about DML? (4mks)

j. Rationalize situations that can warrant the use of the following types of engines:

(i) InnoDB (ii) Merge (iii)Heap (3mks)

k. In a vehicle, engine is seen as the strong room; likewise in database. What are the strong rooms of MySQL application? (5mks)

l. Were you aware of the recently tried and introduced e-voting for student elections? Certainly Yes, if you are to design a database named ***SUGELECT\_DB***, what are the different tables you should have and what should be their file structures considering yourself as both the designer and the administrator? (5mks)

2a. One of the ways love and unity is evidence in a family is that, members of such family have/keep records of the birthday of each. Create one for your family members. Let your design be such that it is a one-in-all database application that consists of a singular table/file that caters for not only your nuclear family birthday records, but that of your extended family, compound family and family friends. (5mks)

b. From the database and table created, fire the underlisted queries:

1. all extended family members born in the month of ‘January’ of any year
2. all nuclear family members whose age is less than 30
3. all compound family members who are born year(s) before the Nigerian independent year
4. any family member whose birthday coincides with any fixed festive, national or global days (e.g. 25/12 – Xmas, 01/01 – New Year, etc.)
5. all male members that are born in August of any year (10mks)

3a. Discuss and demonstrate the use of the following clauses:

i. Limit ii. Order-By iii. Update iv. Alter-Change v. Concat (5mks)

b. Your four years interactions with the department is a pointer to the fact that, hardly could there be anything you are not knowledgeable about when we talk of staff and student matters. Therefore permit me to request your service of creating a data-repository for the department, whose design of course can be adapted to cater for all departments in the school. Naming the database ***deptdb***, consisting of: (i) staff\_file (ii) student\_file

The staff\_file consists of information/data about academic staff; which includes regular academic staff, adjunct academic staff, and sabbatical academic staff, while the non-academic staff consists of information/data about non-academic staff like typist, secretary, office assistant, and the technical staff (e.g. technologist etc.).

The student\_file consists of information/data about students; which includes regular students, pre-degree students, sandwich students, part-time students etc.

The underlisted queries to be fired however suggest more on the components of each table:

1. filter all adjunct academic staff; report their total number also
2. filter all regular academic staff with PhD
3. filter all final year students who are eligible for next batch NYSC; assuming NYSC age to be 26
4. filter all female departmental staff who are less than 45 in age
5. filter all departmental staff that have more than one qualifications/degrees
6. filter all male departmental staff that are not yet married
7. filter all direct entry students and also report their population
8. filter any academic staff that is not holding any portfolio (e.g. exam officer)
9. filter any departmental staff that has stayed on the job for more than 35years
10. filter staff and student that have close identification in their name data (For instance, all students having the same SURNAME with Mr. AJAYI (a staff) or the same FIRSTNAME with MR. SEGUN (a staff) (10mks)

4a. Explain the database lifecycle. (12mks)

b. Differentiate between Conceptual, Logical, and Physical Database Designs (3mks)

5a. As a student, create a database and table that helps to populate your scoring performance per semester for all the courses undertaken. Since the app is personal, you may not bother having name as part of the fieldnames. You should know also that your bio-data is not needed here; strictly your test and exam records for each semester, accumulating unto the various sessions till your graduation. Ensure appropriate indexes where necessary. (5mks)

b. As a way of testing the robustness and functionality of the created app, populate the record with your scoring performances for 400level 1st semester only. Proceed to integrate the database app with PhP, and filter your result appropriately. (5mks)

c. With reference to 5a above, what could be the challenge(s) if you:

1. use matric-no as the primary key?
2. use course-code as the primary key considering the fact that the program will be run for many semesters, in which there is likelihood of repeated course(s)?
3. are mandated to use an index/a key? How will you resolve/ensure this? (3mks)

d. Discuss the use of GRANT and REVOKE as DCL Clauses. (2mks)