WORKFORCE DEVELOPMENT AUTHORITY

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ADVANCED LEVEL NATIONAL EXAMINATIONS, 2018, TECHNICAL AND PROFESSIONAL STUDIES

EXAM TITLE: DATABASE AND WEB DESIGN

OPTIONS: Computer Science (CSC)

Computer Science and Management (CSM)

DURATION: 3 hours

INSTRUCTIONS:

The paper is composed of **the following Sections**:

Section I: Eighteen (18) compulsory questions.   **55 marks**

Section II: Attempt **any three (3)** out of five questions.   **30 marks**

Section III: Attempt **any one (1)** out of three questions.   **15 marks**

Note:

Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.

Section I. Eighteen (18) Compulsory questions   55 marks

01. Define the fundamental characteristics of the database system.   **(3 marks)**

02. Explain the roles of the database designers.   **(4 marks)**

03. What does characterize an SQL scheme?   **(3 marks)**

04. Explain:

    a. Integrity constraint

    b. Referential integrity constraint.   **(3 marks)**

05. Explain what a trigger is.   **(2 marks)**

06. Explain the importance of attributes in HTML tags.   **(2 marks)**

07. Explain these terms: table, column and row.   **(3 marks)**

08. Define the scheme.   **(2 marks)**

09. Explain column and scalar functions in SQL, with 2 examples each. **(3 marks)**

10. Why do programmers prefer PHP?   **(4 marks)**

11. Explain: transaction, isolation and atomicity.   **(3 marks)**

12. Explain the normalization of data.   **(3 marks)**

13. Explain program-data independence.   **(3 marks)**

14. Explain the support of multiple views of the data as one of the characteristics
    of the database approach.   **(3 marks)**

15. Explain the naive or parametric end users of the database.   **(4 marks)**

16. Explain the UNION and EXCEPT operators in SQL queries.   **(4 marks)**

17. Explain the database back-ends.   **(3 marks)**

18. Explain the importance of a database catalog.   **(3 marks)**

Section II. Choose and answer any three (3) questions   30 marks

19. Explain the dynamic, interactive Web site, and the process of running a PHP
    script on the web server.   **(10 marks)**

20. Describe the operator types in PHP.   **(10 marks)**

21. Explain any ten built in SQL functions.   **(10 marks)**

22. Here is a database with its table OFFICES:

City	target	sales
Denver	$ 300,000.00	$186,042.00
New York	$ 575,000.00	$575,000.00
Chicago	$ 800,000.00	$735,042.00
Atlanta	$ 350,000.00	$367,911.00
Los Angeles	$ 725,000.00	$835,915.00

a. Write an SQL statement to show the cities whose sales are greater than target

b. Write an SQL statement to show the average sales of Denver and Atlanta

(10 marks)

23. a. Use an SQL statement to create a table PERSONNEL with following fields: ID, Name, Dept, Job, Years, Salary, Birth Date.

b. Write a statement to insert a record in the table created above.

(10 marks)

Section III. Choose and answer any one (1) question   15 marks

24. a. Consider the output below, which is a numbered list from 1 to 5:

   1. chop potatoes into quarters;
   2. simmer in salted water for 15-20 minutes until tender;
   3. heat milk, butter and nutmeg;
   4. drain potatoes and mush
   5. mix in the milk mixture.

Give the corresponding HTML codes that could create a numbered list of any five items.

b. Consider the following html codes:

<html>

<dl>

<dt>Sashimi</dt>

<dd>Sliced raw fish that is served with condiments such as shredded daikon radish or, ginger root, wasabi and soy sauce</dd>

<dt>Scale</dt>

<dd>A device used to accurately measure the weight of ingredients</dd>

<dd>A technique by which the scales are removed from the skin of a fish</dd>

<dt>Scamorze</dt>

<dt>Scamorzo</dt>

<dd>An Italian cheese usually made from whole cow's milk (although it was traditionally made from buffalo milk)</dd>

</dl>

</html>

What could be the web page as an output?

(15 marks)

25. PHP's date() function lets you convert a timestamp to a date string. It works in a similar way to idate(), in that you pass it a format string and a timestamp to work with (omit the timestamp to convert the current date and time). The main difference is that the format string can contain multiple characters, allowing you to generate a date string containing as many components of the date and time as you like.

    Give 15 characters and their corresponding date strings in PHP. **(15 marks)**

26. Given the following table called **EmployeeTable**, respond to the following questions that follow:

EmployeeID	FName	LName	Salary	StartingDate	Department	Gender
1	Emmanuel	Mugisha	150000	2005-05-15 10:15:30:290	Sales	Male
2	Steven	Gakumba	200000	2005-05-15 11:15:30:290	IT	Male
3	Ivan	Mwema	200000	2005-05-15 12:15:30:290	IT	Male
4	George	Mucyo	100000	2005-05-15 14:15:30:290	Finance	Male

a) Write a query to get all employee details from EmployeeTable and give the output.

b) Write a query to get all employees whose Salary is below 200000 and give the output.

c) Write a query to get all employees whose Salary is Above 100000 and give the output.

d) Write a query to get all employees whose Salary is between 100000 and 200000 give the output.

e) Write a query to get all employee details, sales department deleted and give the output.

(15 marks)