External assessment 2023

Digital Solutions

General instruction

- Work in this book will not be marked.

Instruction

• Respond to these questions in the question and response book.

QUESTION 1

Which encryption method uses a private and public key to secure data during transmission over the internet?

    (A) AES

    (B) DES

    (C) RSA

    (D) Twofish

QUESTION 2

Screen-based user interfaces must dynamically adjust for different screen sizes because devices such as mobile phones and televisions have different aspect ratios and dimensions.

Which useability principle does this demonstrate?

    (A) utility

    (B) safety

    (C) validity

    (D) reliability

QUESTION 3

Arranging and organising the UI elements of a user interface demonstrates use of

    (A) useability and accessibility.

    (B) elements of visual communication.

    (C) principles of visual communication.

    (D) a suitable programming environment.

QUESTION 4

During a video call with a friend, you notice a long delay between asking a question and your friend responding. This is most likely due to

(A) jitter.

(B) latency.

(C) timeliness.

(D) protocol standards.

QUESTION 5

Which encryption method uses a fixed shift of letters down the alphabet with a modulus operation?

(A) Caesar

(B) Vigenere

(C) Gronsfeld

(D) One-time pad

QUESTION 6

Which statement correctly describes the relationship between JSON and REST?

(A) Both JSON and REST are formats used to exchange data.

(B) JSON uses JavaScript object notation and REST uses XML.

(C) JSON is a format used to exchange data through REST architecture.

(D) JSON refers to the client side and REST refers to the server side of a data exchange.

QUESTION 7

The algorithm outputs a data set according to values a user inputs.

```
1  BEGIN
2    INPUT firstNum
3    INPUT secondNum
4    FOR i = 1 TO firstNum
5      FOR j = 1 TO secondNum
6        CALCULATE result = i * j
7        OUTPUT i "*" j "=" result
8      ENDFOR
9    ENDFOR
10 END
```

If the user inputs firstNum = 6 and secondNum = 10, how many times would line 6 be executed?

(A) 1

(B) 6

(C) 10

(D) 60

QUESTION 8

An open data set contains plain text of the facilities available in Queensland parks. To develop a mobile application that identifies basketball courts in a suburb, it is necessary for data to be

    (A)   retrieved, normalised and verified.

    (B)   retrieved, normalised and validated.

    (C)   normalised, validated and encrypted.

    (D)   retrieved, modularised and validated.

QUESTION 9

In a data dictionary where all the item types are numeric, which item would be stored as a float?

    (A)   shoeID

    (B)   quantity

    (C)   numSold

    (D)   wholesalePrice

QUESTION 10

The table shown is named 'Planets' and is stored in a database.

Name	Moons	Diameter	Gravity	Mean temperature
Mercury	0	4 879	3.7	167
Venus	0	12 104	8.9	464
Earth	1	12 756	9.8	15
Mars	2	6 792	3.7	− 65

Which SQL query will return the name and mean temperature of any planet with a diameter less than 50 000, ordered in descending order of mean temperature?

(A) SELECT Name, MeanTemperature

FROM Planets

WHERE Diameter < 50000

AND ORDER BY MeanTemperature DESC

(B) SELECT Name, MeanTemperature

FROM Planets

WHERE Diameter < 50000

ORDER BY MeanTemperature DESCENDING

(C) SELECT Name, MeanTemperature

FROM Planets

WHERE Diameter < 50000

ORDER BY MeanTemperature DESC

(D) SELECT Name, MeanTemperature

FROM Planets

WHERE Diameter < 50000 AND

ORDER BY MeanTemperature DESC

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