

KASNEB

CICT PART II SECTION 4 WEB DESIGN AND e-COMMERCE

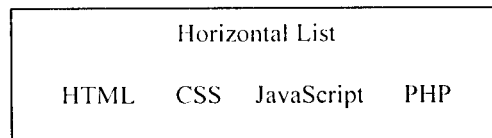
FRIDAY: 26 May 2017.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

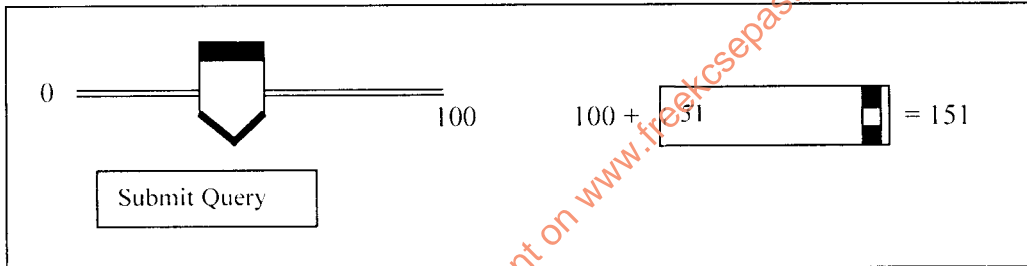
QUESTION ONE

- (a) Explain three disadvantages of using flash animations on websites. (3 marks)
- (b) (i) Write HTML code that displays the horizontal list as shown below:



(3 marks)

- (ii) Write HTML code that performs a calculation and shows the result in an `<output>` element as shown below:



(6 marks)

- (c) Discuss four types of consumer oriented applications in e-commerce. (8 marks)
- (Total: 20 marks)

QUESTION TWO

- (a) Explain the following security measures in the context of e-commerce:
- (i) Digital signatures. (2 marks)
- (ii) Security certificates. (2 marks)
- (b) Highlight four properties of a secure digital signature. (4 marks)
- (c) Payment using credit cards is one of the most common modes of electronic payment.

Required:

- (i) Describe a credit card. (2 marks)
- (ii) Enumerate the steps followed in the credit card payment process. (6 marks)
- (d) Write a JavaScript function named "fullNames" that takes three arguments: first, middle and surname. The function should combine all the names and return the full name. (4 marks)

(Total: 20 marks)

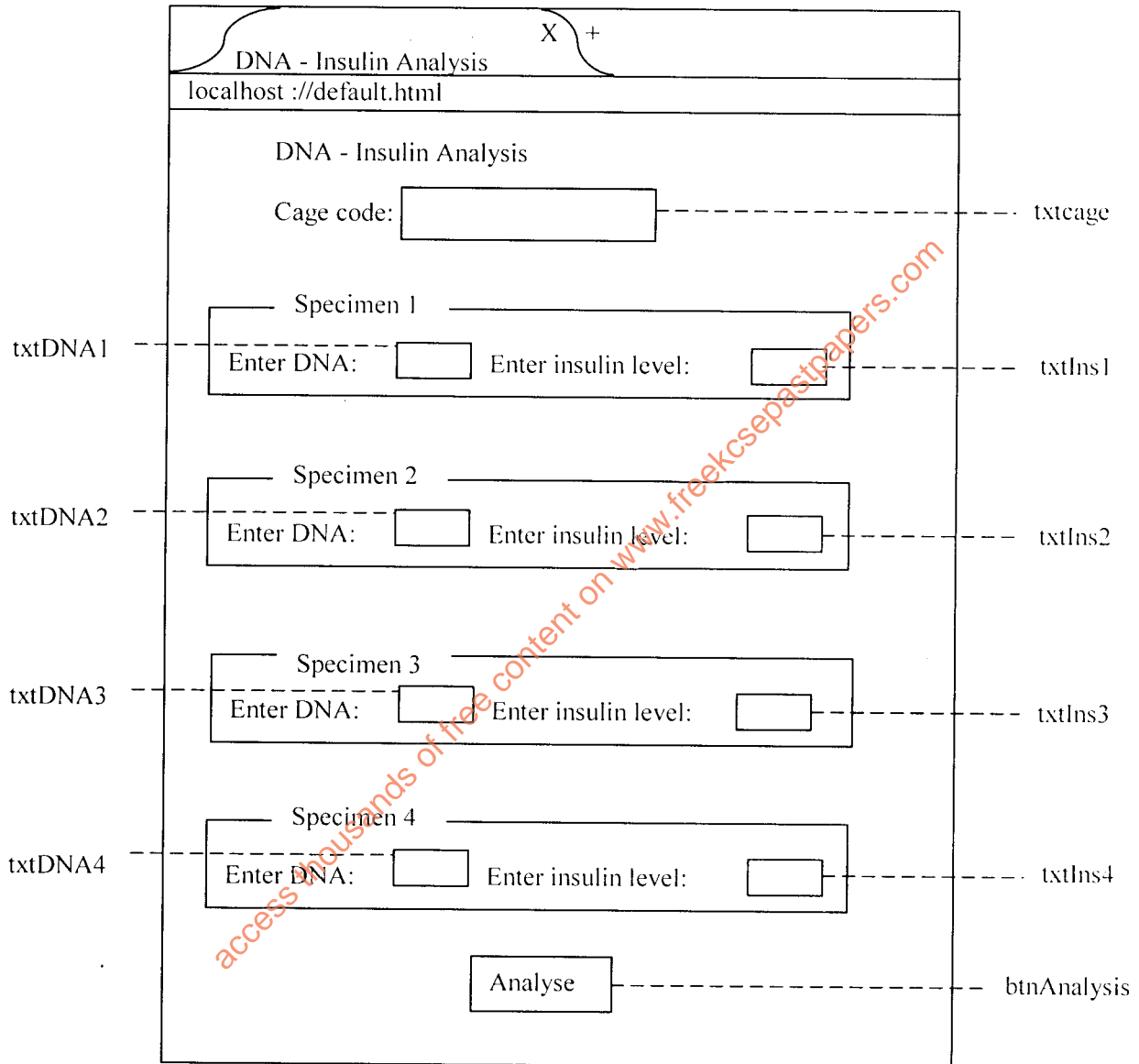
QUESTION THREE

In a veterinary laboratory, scientists rear up to four mice in different cages for experiment purposes. You have been tasked to analyse the requirements for the laboratory and develop a web application to assist the scientists in their day-to-day activities.

Required:

(a) Write an HTML interface that will capture the DNA value and insulin level for each mouse as shown in the figure below:

In the HTML code, ensure that the “Analyse” control click event calls a JavaScript function named “Analyse ()” that exists in an external JavaScript file named “VetLab.js”.



(10 marks)

(b) Write a JavaScript function called “Analysis ()” that retrieves the insulin values and calculates the average and standard deviation. Use an appropriate pop-up to display the cage code, average insulin and the standard deviation values using the following formulae:

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n}}$$

where

- \bar{X} = mean of all values
- X = value in each data set
- Σ = sum of
- σ = standard deviation
- n = number of values in the data set

(10 marks)

(Total: 20 marks)

QUESTION FOUR

- (a) (i) Describe the principle of anticipation as used in animations. (2 marks)
- (ii) Explain the difference between “key frame animation” and “inverse kinematics animation”. (4 marks)
- (b) Describe four user-centred visualisation design considerations for an effective website. (8 marks)
- (c) Consider the following code:

```
<p> hello </p>
<div>
  <div> one </div>
  <div id = "div"> two <br/> two two </div>
</div>
<div class = "div"> three <br/> three three <br/>
  three three three </div>
<div class = "div"> four <br/> four four <br/>
  four four four </br>
  <span class = "div"> four four four four </span> </div>
<p> goodbye</p>
```

Required:

Using an illustration, demonstrate how the above HTML code would display when the browser renders it on-screen.

Assume that the HTML is wrapped in a valid full page with a head and body. Indicate any non-white background by shading lightly or by drawing diagonal lines. (6 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Discuss the concept of cloud computing in the context of the following sub-headings:
 - (i) Device independence. (2 marks)
 - (ii) Increased data reliability. (2 marks)
 - (iii) Unlimited storage capacity. (2 marks)
 - (iv) Instant software updates. (2 marks)
- (b) Identify four HTML methods that could be used to integrate audio and video media in a website. (4 marks)
- (c) Formulate a four step process that you would follow to design an effective website. (8 marks)

(Total: 20 marks)

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