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CHAPTER TEST ANSWERS

Chapter 7 Data analysis and visualisation

Section A

Multiple-choice questions

1 In the problem-solving methodology (PSM), evaluation criteria are determined during:

   B design.

2 Primary data:

   A is collected first-hand by the researcher.

3 You would expect reliable and unbiased information about Australian politics to come from:

   D a VCE politics textbook.

4 If data has integrity, it:

   B is accurate, timely, authentic and relevant.

5 The difference between valid data and accurate data is that:

   C valid data is reasonable, but accurate data is true.

6 A radio button would be appropriate to enter data about:

   A which state or territory you live in.

7 Sally is creating a database for a shop that sells chocolate and delivers online. She makes one field of the online order form compulsory, so people cannot complete a purchase unless they enter a value for that field. The compulsory field might be:

   D their town or suburb.

8 Timely data:

   C is current and available when needed.

9 A researcher wants to find out how much sugar Australian teenagers eat daily. The researcher finds a detailed study done last year about sugar consumption by teenagers in England. The researcher may choose not to use the data because it is:

   A irrelevant.

10 A researcher creates a database to store survey data. One question asks how many children the respondents have. In what data type should the answer be stored?

   D Integer

11 Wei collects data about the amount of rainfall in his backyard every day. To store a year's worth of data during processing, he should use:

    B an array.

12 Wei wants to expand his weather monitoring to store each day's maximum and minimum temperatures, UV rating, and level of cloud cover. To store this daily data on disk, he should use:

    A records.

13 Wei wants to show clearly how rainfall changes across the course of an entire year. He should create a:

    A line chart.

14 A site map for a website is an example of:

    C a hierarchy visualisation.

15 A magazine wants to briefly and humorously show a summary of the differences between men's and women's daily grooming activity. This would best be achieved using:

    C an infographic.

Section B

Short-answer questions

1 When solving an information problem, the first stage of the problem-solving methodology (PSM) is analysis.

    a Name the three main tasks undertaken during analysis.

    Answer:

- Determine constraints (1 mark)
- Identify solution requirements (1 mark)
- Describe the scope of the solution (1 mark)

    b Describe one serious consequence of not undertaking the analysis stage of the PSM.

    Answer: The problem may not be understood properly (1 mark), and as a result the solution may be incomplete or unsuitable for user needs (1 mark). Accept any reasonable response.

2 Describe five conventions used in webpages, and explain the reason each one is valued.

Answer: Responses will vary. Some possible responses are listed below. Award ½ mark for each convention and ½ for the reason.

- Underlined hyperlinks are used so users can distinguish between a link and plain text.
- Links back to the homepage are added to the site logo on every page so the user can always return to the homepage.
- The landing page is named 'index' so visitors need not guess the name of the opening page at a domain.
- Search facilities are provided so users can find relevant information easily.
- Large images are linked to thumbnails so users can choose what to spend their download time and bandwidth on.
- Contacts pages are provided so users can get in contact easily with the site administrators.

- A 'Privacy Policy' link is provided on Australian pages to satisfy the *Privacy Act 1988*.
- GIF/PNG format is used for logos or line art, and JPEG is used for photos so that browsers can most efficiently display all images.

3 a What are two things you would change in the following visualisation to make its meaning more clear?

Answer: Any two of the following, 1 mark each:

- A heading to explain what kind of network is being visualised
- Labels to name the countries and/or continents
- A legend to explain what the different levels of brightness indicate.

b Use the following data to create a data visualisation, other than a scatter diagram, that clearly displays the data's main trends or patterns.

Student	James	Sally	Jessica	Tracey	Billy	Andrew
Test 1	60%	90%	77%	67%	40%	70%
Test 2	65%	51%	77%	72%	87%	68%

Answer: Responses will vary. Accept any clear visual representation, such as a stacked bar graph.

4 a In the data-entry form shown above, identify four different data input controls and justify their use for that item of data.

Answer:

- Textbox (½ mark) is used for name because it could be any value (½ mark).
- Listbox (½ mark) is used for country because there are a limited number of valid options from which to choose (½ mark).
- Checkbox (tickbox) (½ mark) is used for 'Send me email alerts' because it is a true/false answer (½ mark).
- Radio buttons (½ mark) are used for shipping destination, because the choice can be one or the other, but not both or neither (½ mark).

b Choose one of the controls you used in Question **a** above, and explain the possible consequences if a less-appropriate control had been used.

Answer: Responses will vary.

5 a Identify two problems a data visualisation may have that would make it less successful.

Answer: Any two of the following are acceptable.

- Too complicated
- Too much data
- Lacking explanation
- Colours are unclear
- Too small
- Bad statistics

b Identify three ways that you may need to modify a data visualisation from a website if you needed to re-publish it in a print newspaper in only blank ink.

Answer: Responses will vary. Possible answers include the following.

- Colour on the webpage may need to be replaced by a pattern for the newspaper (1 mark)
- Clickable elements on the website will need to be show as separate images in the newspaper (1 mark).
- Small items in the website may need to be magnified for the printed version (1 mark).