Name: _____

Class: _____

CHAPTER TEST

Chapter 2 Approaches to problem-solving methodology: data analysis

Section	Number of questions	Number of questions to be answered	Number of marks	Marks achieved
A	15	15	15	
B	5	5	25	
Total			40	

Grade: _____

Scale:

A+	36–40	**A**	32–35	**B**	28–31	**C**	24–27	**D**	20–23	**E**	11–19	**UG**	0–10

INSTRUCTIONS

Write your **name** and **class** in the space provided above. All written responses must be in English.

MATERIALS

- Question book of 8 pages.
- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are **NOT** permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- Calculators are **NOT** permitted in this examination.
- Students are **NOT** permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

Section A

Multiple-choice questions

INSTRUCTIONS FOR SECTION A

- Circle the correct answer in pencil for multiple-choice questions.
- Choose the response that is **correct** or that **best answers** the question.
- A correct answer scores 1 and an incorrect answer scores 0.
- Marks will **not** be deducted for incorrect answers.
- No marks will be given if more than one answer is given for a question.

1 In a database or spreadsheet, a macro is used to:

A see more detail in data.

B magnify screen display.

C automate complex tasks.

D organise data differently.

2 Graphic solutions are useful because they:

A include all details of the original data.

B are attractive.

C are always better than boring lists of numbers.

D clearly show patterns in data.

3 A suitable way to show changes over time is:

A a column chart.

B a pie chart.

C a scatter chart.

D a table.

4 An infographic often succeeds when it is:

A densely packed with information.

B engaging.

C full of text.

D irrelevant.

5 Proportion can be employed by:

A putting important information first.

B highlighting important information in a different colour.

C making important information larger than less important information.

D making sure the same icons are used throughout a presentation.

6 You can use the design principle contrast by:

A applying very different colours to text and backgrounds.

B changing fonts to make important text more dramatic.

C making text easy to read for people with poor vision.

D changing sentence lengths regularly.

7 When using other people's intellectual property in your graphic solution, you should:

A make sure no one can tell the work is not yours.

B cite it the same way as the infographics in Chapter 2.

C cite using a reference style such as Harvard, APA, Chicago or IEEE.

D cite it in a separate document.

8 A convention is:

A a rule about how things must be done.

B the standard, accepted way of doing things.

C a functionality design principle.

D the appearance of data.

9 You could improve the accessibility of your graphic solution by:

A putting it on a fast computer.

B providing search facilities.

C choosing a body text size that is readable by many people.

D making it small and fast-loading.

10 With an IPO chart, you can:

A manage projects.

B manage information, people and organisations.

C design formulas.

D show changes in data over time.

11 If you needed to design the appearance of a webpage you could use:

A a mock-up.

B a flowchart.

C a webpage editor.

D a browser.

12 Validation checks that:

A information is accurate.

B data is reasonable.

C a solution works properly.

D users are satisfied with the finished product.

13 During the testing of an infographic, a user points to a section of the infographic and asks, 'What on earth does this have to do with the topic?' You would conclude that this section is:

A inaccurate.

B unclear.

C ambiguous.

D irrelevant.

14 If a manager complained that a graphic solution is ineffective, it might be because it:

A is slow to load.

B is too expensive.

C is inaccurate.

D takes too much labour to create.

15 A researcher chooses to present data in a table. The researcher is using:

A a format.

B a convention.

C a graphic solution.

D a design principle.

Section B

Short-answer questions

INSTRUCTIONS FOR SECTION B

Answer **all** questions in the spaces provided.

1 James, a researcher into student health, conducts interviews to determine if the amount of sleep students get affects their mood or wellbeing. The data is as follows.

Sleep (hours)	Average mood 1 = Worst mood to 5 = Happiest mood
<5	2
5–6	3
7–8	4
8–9	5
>9	3

Choose an appropriate graphic format to make the meaning of this data clear to readers. Use conventions that are appropriate to the chosen format and annotate the graphic to indicate the conventions that have been used, and where.

(5 marks)

2 List five reasons for using software rather than pen and paper to create a graphic solution to represent data.

(5 marks)

3 Alice gathers data about how students feel about their teachers. She asks several questions, and students answer using a standard scale for answers from zero (not at all, or never) to 10 (completely, or all the time).

a Suggest three methods Alice could use to validate the data.

(3 marks)

b From the data, Alice creates an infographic. Suggest two methods she could use to test the effectiveness of the infographic.

(2 marks)

4 a List the four stages of the problem-solving methodology (PSM) and explain the main purpose of each one.

(4 marks)

b Identify and explain one main benefit of using the PSM.

(1 mark)

5 James, still researching student health, gathers more data about student daily activity.

He summarises data from many interviews and discovers that, on average, students spend their days as follows.

Activity	Time spent (hours)
Sleeping	9
School	7
Recreation (sport)	6
Paid work or homework	2

Create a suitable graphic solution to show this data, using appropriate formats and conventions. Annotate the graphic to indicate where you have applied formats and conventions.

(5 marks)