2023 VCE Applied Computing: Data Analytics external assessment report

General comments

The 2023 VCE Applied Computing: Data Analytics examination was the fourth year of the VCE Applied Computing Study Design 2020–2024. The examination consisted of three sections: Section A – Multiple-choice questions; Section B – Short-answer questions; and Section C – Case study questions.

In Section A the multiple-choice questions were mostly answered very well. Areas in which students scored highly related to data security, file naming/management and spreadsheets. Areas in which students did not score well were constraints, research questions, charts and efficiency and effectiveness.

In Section B it was evident that students understood backing up strategies. Areas for improvement include normalisation, design principles and testing techniques.

In Section C students were able to design an appropriate form for a survey (Question 3), understand networks and security (Question 6), and showed an understanding of why sources should be referenced (Question 8) and of legal issues (Question 15).

Areas for improvement include:

* Drawing a Gantt chart (Question 2): when drawing the dependencies students need to start at the end of the last task and go to the start of the next task and through the milestone. Marks are not awarded if the line for the dependencies either starts or finishes in the middle of the task. Milestones need to be on the line (start of the day that the milestone relates to) and students need to identify reasons why a response needs to be codified (Question 4a.).
* A large number of students did not know or understand what a Geographic Information System (GIS) was (Question 9) nor could they explain how that information could be used in a visualisation.
* Students struggled with questions relating to data validation (Question 12a.); in this question students needed to give an example that relates directly to the case study to gain full marks.

Other areas that should be addressed include:

* When answering a question that asks students to justify a response, the response must involve a comparison of the stated option against an alternative option and state why the stated option is preferred (Section B, Question 2c.).
* Students should always give an example that relates to the relevant question or case study, or they will not be able to obtain full marks (Section C, Questions 4b., 9b., 12 and 13b.).
* When quoting legislation (Section C, Question 15), such as one of the acts, students must include the correct year to receive marks for that component of the question (e.g. Privacy Act 1988).
* Students need to be familiar with the Applied Computing study design and the ‘Software tools and functions’ document (available on the Data Analytics study page) from the beginning of each year.

Specific information

Note: Student responses reproduced in this report have not been corrected for grammar, spelling or factual information.

This report provides sample answers, or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding, resulting in a total of more or less than 100 per cent.

Section A – Multiple-choice questions

The following table indicates the percentage of students who chose each option. The correct answer is indicated by shading.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Question | Correct answer | % A | % B | % C | % D | Comments |
| 1 | A | 50 | 17 | 2 | 31 | A mobile telephone number is not needed for a calculation in a database and therefore the most appropriate data type should be text. |
| 2 | A | 91 | 3 | 3 | 3 |  |
| 3 | C | 2 | 3 | 90 | 5 |  |
| 4 | C | 14 | 5 | 76 | 4 |  |
| 5 | B | 19 | 69 | 8 | 4 |  |
| 6 | A | 26 | 36 | 17 | 21 | A social constraint relates to the level of expertise of the end user. A is the only option. |
| 7 | B | 5 | 42 | 50 | 2 | A research question must start with ‘What’, ‘Why’ or ‘How’. B is the only response that does this. |
| 8 | C | 13 | 3 | 82 | 3 |  |
| 9 | A | 70 | 5 | 20 | 5 |  |
| 10 | A | 38 | 18 | 13 | 31 | The response needs to involve both efficiency and effectiveness.A. involves both efficiency and effectivenessB. involves effectiveness onlyC. involves effectiveness onlyD. involves efficiency only. |
| 11 | C | 4 | 4 | 91 | 1 |  |
| 12 | A | 30 | 17 | 14 | 39 | The question is looking for efficiency; option A (a check box) is the best way to achieve this. B is irrelevant as the data is not live. C would be too busy and as a result inefficient, and D would be hard to compare. |
| 13 | D | 10 | 12 | 50 | 28 | A. could confuse the target audience. B. users don’t need to see the complete data set.C. language needs to be specific to the topic. |
| 14 | B | 29 | 32 | 17 | 21 | A bubble chart could show a relationship between 3 factors; the other options can only be used to show a relationship between 2 factors. |
| 15 | D | 22 | 5 | 19 | 53 |  |
| 16 | D | 12 | 6 | 25 | 56 |  |
| 17 | D | 3 | 18 | 16 | 63 |  |
| 18 | D | 0 | 1 | 7 | 92 |  |
| 19 | B | 7 | 90 | 2 | 1 |  |
| 20 | A | 90 | 2 | 4 | 4 |  |

Section B

Question 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | Average |
| % | 66 | 16 | 10 | 6 | 2 | 0.6 |

Students were required to normalise the design into third normal form.

Marks were awarded for.

* reasonable table names (must be four)
* all fields listed correctly in tables; no mark given if ‘Total Cost’ is listed in the transaction table
* all primary keys provided in each table drawn; this could be in the form of PK, \* or solid underline
* all foreign keys provided in tables drawn; this could be in the form of FK or a dotted underline.

Students did not have to show the relationships between each table to gain marks. The following is a possible answer.

Question 2a.

|  |  |  |  |
| --- | --- | --- | --- |
| Mark | 0 | 1 | Average |
| % | 52 | 48 | 0.5 |

Students were required to outline a technique the organisation could use to generate design ideas for the infographic.

The most common responses that gained a mark were:

* brainstorming
* mind maps
* PMI chart
* researching other infographics.

Question 2b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 36 | 22 | 42 | 1.1 |

To gain full marks, students were required to identify and describe a design principle that was appropriate for the target audience.

Acceptable design principles that related to appearance were: alignment, balance, contrast, image use, space, and text and table formatting.

The following is a possible answer.

The organisation must ensure infographic uses the design principle of contrast. This ensures the elderly population are able to read provided information without difficulty, since infographic elements contrast the background.

Question 2c.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | Average |
| % | 22 | 9 | 31 | 38 | 1.9 |

Students were required to justify which design idea would be more appropriate. Only Design A was accepted; students did not gain any marks if they suggested Design B.

To gain full marks, students needed to select Design A, state a reason why it should be chosen and then state a reason why Design B would not be appropriate.

Common responses for choosing Design A were large text and more images; common responses for not choosing Design B were small text and small graphs.

The following is an example of a high-scoring response.

Design A is more appropriate because it contains a large font size which ensures elderly people who have poor vision to easily read and thus understand the intended message. Design B is not appropriate because it contains many large blocks of text with small font sizes which makes it harder to read and interpret its message for elderly people who may have vision problems.

Question 3a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 50 | 35 | 15 | 0.7 |

To gain full marks, students needed to explain the difference between navigation and error tolerance. While many students could describe what navigation was, most struggled with error tolerance.

Navigation refers to the ease with which a user can move through the interface of a data analytics tool to access the features and functions they need. This includes things like the layout of the interface, the placement of menus and buttons, and the organisation of data and analysis results.

Error tolerance refers to the ability of a data analytics tool to handle mistakes made by the user. This includes things like providing helpful error messages, allowing users to undo or redo actions, and preventing users from making errors in the first place.

Error tolerance is not the errors presented in the data visualisation nor the ability to function despite errors. Students who mentioned these were not awarded the mark.

The following is an example of a high-scoring response.

Navigation is the ability to manoeuver from one area of the dynamic data visualisation to another. Error tolerance however is related to how the visualisation manages errors, this tolerance is evident when it displays warning messages instead of shutting down completely.

Question 3b.

|  |  |  |  |
| --- | --- | --- | --- |
| Mark | 0 | 1 | Average |
| % | 78 | 22 | 0.2 |

Students who gained a mark for this question had a response along the lines of: ‘Click on each of the navigation buttons and check that it opens to the correct new dashboard/page’ or ‘Click on the links and see if they work as expected’.

Question 3c.

|  |  |  |  |
| --- | --- | --- | --- |
| Mark | 0 | 1 | Average |
| % | 86 | 14 | 0.2 |

Students who gained a mark for this question had the following responses:

* Enter incorrect information and see how it reacts; error message appears.
* Move the cursor over a point of question and check that the tip is useful and assists the user.
* Move the cursor over options and check they cannot be selected.
* Click on the back/home icon to return to the home page.

A large number of students did not understand what error tolerance was and therefore could not answer the question correctly.

Question 4a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 48 | 9 | 44 | 1.0 |

Students were required to work out the maximum number of days that data would be lost, if the data were to be recovered from a differential backup.

As the differential backup occurred once a week on Friday night, there is the possibility that one whole week’s data will be lost if a disaster occurred on Friday night just prior to the backup being created. Therefore, seven days’ worth of data could be lost. One mark was awarded for stating seven days and one mark for an explanation of what a differential backup is.

A large number of students seem to have confused an incremental backup with a differential backup and therefore did not obtain full marks.

An incremental backup only copies modified data since the last backup. For example, if you took a full backup on Friday, your incremental backup on Saturday would only copy changes since the Friday backup. On Sunday, it would only copy changes to the backup image file since the Saturday backup.

A differential backup strategy copies only newly added and changed data since the last full backup. If your last full backup was on Friday, a backup on Saturday would copy all changes since Friday. If you took another backup on Tuesday, it would also copy all changes from Friday. The backup file size would increase progressively until the next full backup.

Question 4b.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | Average |
| % | 9 | 7 | 42 | 8 | 36 | 2.6 |

Students were asked to suggest and justify two changes to the backing up strategy to improve data protection and the ability to recover from a disaster.

The majority of students were able to suggest at least one change to the backing up strategy.

Marks were awarded for identifying an improvement in the categories of:

* types of backups
* location of backups
* media used for backups
* frequency of backups.

To obtain full marks, answers needed to compare current vs suggested for two categories; responses needed to be from different categories, not from the same category.

The following are examples of high-scoring responses.

Example 1

Instead of storing the backups at on-site locations through HDD’s, store backups through cloud storage to ensure that the data backed up is located off-site and is not susceptible to local threats (e.g. Fire at business)

Example 2

Instead of conducting a weekly differential backup and a monthly full backup, conduct a weekly full back up and a daily incremental backup to ensure that in the event of threats such as a hard drive failure, data loss is minimised compared to the previous strategy.

Section C

Question 1a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 63 | 24 | 13 | 0.5 |

Students were asked to identify two items from the case study that should be included in the scope of the project.

Items that gained marks were:

* five years of data
* three (each) regions
* only wheat production data.

Question 1b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 56 | 32 | 13 | 0.6 |

Students were asked to identify two constraints that would need to be considered when developing a dynamic data visualisation.

Constraints that gained marks were:

* project has to be completed by December 8 (economic/time); must mention date not time
* budget to employ two full-time staff for the duration of the project (economic/budget)
* easy to use and review (usability)
* viewed through a browser and not through a data visualisation application (technical).

Students were not required to list the type of constraint, e.g. economic, to gain full marks.

Responses that mentioned a legal constraint were not awarded a mark.

Question 2a.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | Average |
| % | 48 | 19 | 15 | 11 | 7 | 1.1 |

Students were asked to complete a Gantt chart for the project showing all task durations, dependencies and milestones.

One mark was awarded for each of the following:

* each path of task durations correct avoiding weekends, except for Task 4
* Task 4 using weekend
* three milestones after Tasks 5 and 8 and at the end of the project (must be on the border line)
* showing dependencies – must be from back of task to front of next task and go through milestone.

A large number of students did not correctly draw the dependencies or the milestones and this resulted in them not being awarded a mark for that task. Students needed to start at the end of the last task and go to the start of the next task and through the milestone when drawing the dependencies. Marks were not awarded if the line for the dependencies either started or finished in the middle of the task. Milestones needed to be on the line (start of the day that the milestone relates to).

Note: Task 7 can start anytime from November 13 as long as Task 8 is completed by November 27. Tasks 7 and 8 cannot be held over the weekend.

Question 2b.

|  |  |  |  |
| --- | --- | --- | --- |
| Mark | 0 | 1 | Average |
| % | 58 | 43 | 0.4 |

Students were asked to list the tasks not included in the critical path.

Responses that obtained the mark were Tasks 7 and 8. These two tasks can be delayed or take longer to complete and will not affect the end dates of the project. Task 9 was also accepted. Although it is a milestone, it is listed as a task and therefore could be included.

Question 2c.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 62 | 17 | 22 | 0.6 |

Students were asked to explain why the tasks from Question 2a. were not included.

One mark was awarded for stating that the tasks can be delayed or take longer to complete and one mark was awarded for stating that the tasks will not affect the end date of the project. Students who mentioned slack time in the correct phrase were awarded a mark.

The following is an example of a high-scoring response.

These tasks do not contribute to the longest path without any slack time. Both 7 and 8 can be delayed without impacting the final collation date.

Question 3

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Average |
| % | 12 | 4 | 7 | 16 | 19 | 22 | 14 | 6 | 3.8 |

Students were asked to design a form for a survey that can be viewed as an input form. They were required to label the appropriate form elements.

One mark was awarded for each of the following:

* two textboxes – Name and Email
* dropdown box or radio buttons – for region
* radio buttons or dropdown for farmer/community question or check box if question asked
* checkbox – Grain type
* textbox – Comments on facilities
* radio buttons or checkboxes – Contact
* Submit button.

A number of students did not label the appropriate form elements and could not receive full marks.

Question 4a.

|  |  |  |  |
| --- | --- | --- | --- |
| Mark | 0 | 1 | Average |
| % | 79 | 21 | 0.2 |

Students who gained one mark were able to correctly identify a reason why the responses needed to be codified.

Acceptable answers were similar to ‘You can manipulate the data into graphs or find trends to support the positive or negative comments’.

A number of students stated that codifying the data allows for qualitative data to be converted into quantitative data; while this is true, there needed to be more detail and an example to gain the mark.

Question 4b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 63 | 26 | 11 | 0.5 |

To gain marks, students were required to explain a technique that could be used to codify the data.

Marks were awarded for mentioning categorising or grouping responses with reference to the case study and for stating that they needed to calculate the total or count the responses.

Several students mentioned grouping the common words but did not relate this to the case study and therefore did not gain the mark.

The following is an example of a high-scoring response.

Descriptive coding – this involves Ali and the team assigning a descriptive term to each response and grouping it as such (e.g. traffic, job, money). This allows Ali to count responses and manipulate it for this dynamic data visualisation.

Question 5

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | Average |
| % | 31 | 10 | 25 | 14 | 21 | 1.9 |

Students were asked to identify and explain the purpose of two network components that the farmers need to have, to send the temperature and rainfall data to Grains4Food.

Marks were awarded for listing the required network item (one mark x 2) and explaining the purpose of each item (one mark x 2).

Network items that were accepted: modem, router, switch, WAP, NIC and computer/notebook.

Several students were awarded one mark for identifying the network item but could not correctly describe its purpose. This was particularly the case when identifying a router. The purpose of a router is to connect two networks together e.g. a LAN to the internet.

Question 6a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 34 | 24 | 42 | 1.1 |

To gain marks, students were required to give an example of how a software security control could be used to protect the data as it is sent.

Software security controls that gained marks were encryption, HTTPS or SSL. A common response for how the control could protect the data was ‘stops third parties gaining access while being sent’.

Students who named a firewall as the security control were not awarded any marks as the key to this question was the words ‘as it is sent’.

The following is an example of a high-scoring response.

They can use encryption on the primary data collected to Grains4Food to ensure that even if the data is intercepted when sent the hackers will not be able to access the data.

Question 6b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 32 | 38 | 30 | 1.0 |

Students were required to state one advantage and one disadvantage of using a ‘network attached storage’ device.

It was clear from the responses that a number of students didn’t know what a ‘network attached storage’ device was and therefore did not gain any marks.

The most common acceptable responses for an advantage were:

* fast storage and retrieval as data is local
* large capacity for files
* storage space can be expanded by adding new drives or expansion bays
* data is easier to manage/secure/dispose of as it’s stored in one place
* data is not stored on the local computer
* can be accessed by anyone with access on the network.

The most common acceptable responses for a disadvantage were:

* as the number of users increases, a large increase in traffic over the LAN may slow performance
* data needs to be backed up as it is stored in one location on site
* if security measures fail, an attacker gains access to all data
* devices that support faster storage mediums like SSD are significantly more expensive
* all in one place if something goes wrong – data lost
* need someone with technical knowledge to maintain it
* expensive to set up
* not portable.

Question 7

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 29 | 34 | 37 | 1.1 |

To gain full marks, students were required to justify why a particular resource should be used. This needed to include that the authenticity of the information is in question, or the information could be biased (one mark) and that this is a result of an unknown author or a non-credentialed website source (one mark)

The following is an example of a high-scoring response.

Ali’s research team should not use this data as they do not know the origin of the data and it is not from a trusted source and may not be authentic data and therefore would harm the integrity of Ali’s data.

Question 8

|  |  |  |  |
| --- | --- | --- | --- |
| Mark | 0 | 1 | Average |
| % | 33 | 67 | 0.7 |

To gain a mark, students were required to give a reason why sources should be referenced.

Acceptable answers were similar to:

* gives credit to the authors of the source used
* is a method of acknowledging the sources you have used in your work
* acknowledges intellectual property
* provides the reader with more information about sources
* demonstrates that the data is authentic
* can protect from claims of plagiarism
* acknowledges any ideas or information which are not your own
* Copyright Act 1968 – needs to have correct reason
* gives credibility to the document.

Question 9a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 60 | 33 | 8 | 0.5 |

It was clear from the student response that a large number of students did not know or understand what a Geographic Information System (GIS) was and therefore did not gain any marks for this question.

Students were asked ‘What are two components that could make up a GIS data set’. Successful responses mentioned items such as location (longitude and latitude, city name and state) and climate attributes (temperature and rainfall).

Question 9b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 85 | 12 | 3 | 0.2 |

As a large number of students did not understand what was being asked in part a., they also struggled to gain marks in part b.

Students needed to explain how the GIS data collected would be useful in preparing an effective visualisation. Responses that gained marks included statements similar to ‘producing a map to compare attributes at multiple locations’ and linking that statement to an effectiveness attribute such as clarity, readability, usability, communication of message.

The following is an example of a high-scoring response.

GIS data represented on a map showing distribution of items and events can show readers of the dynamic visualisation the distribution of grains in different regions which will easily communication of message Ali’s visualisations data intend to show.

Question 10

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | Average |
| % | 45 | 16 | 18 | 21 | 1.2 |

Students were asked to list the most appropriate design tool for each component.

|  |  |
| --- | --- |
| Project component | Design tool |
| Identifying and naming required data for the database | data dictionary  |
| Spreadsheet formulas for data manipulation | input–process–output (IPO) charts |
| Dynamic data visualisation appearance | layout diagrams, annotated diagrams, mock-ups, storyboard |

Question 11

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 64 | 11 | 25 | 0.6 |

To gain marks, students were required to explain a technique that can be applied to the Gantt chart to record this progress.

Students who gained marks mentioned techniques such as annotating the original Gantt chart, creating another Gantt chart to show their progress throughout the project or making notes in a log or journal.

One mark was awarded for each of the following:

* identifying the technique
* an explanation as to how the technique enables progress to be recorded.

A large number of students were unable to identify any of the three accepted techniques and were not awarded any marks.

The following is an example of a high-scoring response.

A project log can be created. This can help outline any things that may have been modified or changed as well as parts of the project that have gone well.

Question 12a.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | Average |
| % | 40 | 7 | 14 | 18 | 22 | 1.8 |

Students were asked to identify and describe two techniques that could be used to validate data in the spreadsheet.

Marks were awarded for each technique (one mark x 2) and for the application of the technique in relation to the case study (one mark x 2).

There are three acceptable validation techniques: range check, data type check and existence check.

Students needed to identify one of the three acceptable validation techniques and then give an example that related to the case study to gain a mark per technique.

The most common accepted responses were:

* data type check: Rainfall values for each month need to be set with numeric data type as they will be used for calculations
* range check: Year >= 2018 and <=2022. This will check that the year levels are within the acceptable values for the project.

Question 12b.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | Average |
| % | 77 | 12 | 5 | 6 | 0.4 |

When asked to describe a technique to test the functioning of a spreadsheet, students need to include three steps:

* state the test you are going to conduct
* outline the data to be used, technique and expected result
* explain what needs to be modified if the test does not work as intended.

Responses that gained full marks were similar to:

Test that numeric data only can be entered in rainfall field.

* test data is 22, abc
* allows 22 through, error message for ‘abc’
* if no error message for ‘abc’, review that numeric data type has been set

Or

Test total calculation.

* using calculator, enter and sum the values of rainfall for each month
* check that value on spreadsheet equals calculator result
* if incorrect, check the function used in spreadsheet.

Question 13a.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 67 | 25 | 9 | 0.4 |

Students were asked to identify and outline one format and one convention that could be applied to produce an effective data visualisation. They needed to identify a line chart/graph as the format and outline how it was effective as well as identify a convention relating to the graph (axis title, chart title, scale or legend) and an effective reason for using the conventions.

Many students seemed confused between formats and conventions for spreadsheets and a data visualisation, and as a result did not obtain marks for this question.

Marks were awarded for format and reason (one mark) and convention and reason (one mark).

Students who identified a bar or column chart as a format did not gain any marks for this section.

A number of students obtained a mark for the convention but could not obtain the mark for format. Others did not give a detailed enough reason for both the format or conventions and did not gain any marks.

The following is an example of a high-scoring response.

Format: Line Chart – can display the data for annual rainfall in the different regions over 5 years in a graphical manner.

Convention: Large, bold heading clearly states what the graph is about in a reasonable manner that is easy to understand.

Question 13b.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 81 | 13 | 6 | 0.3 |

To gain marks, students needed to explain why the selected format is preferred to educate the target audience. Responses needed to state that the line chart showed changes over time (one mark) and that it involves a trend/pattern and/or compares data over time (one mark).

Most students did not mention change over time or a trend/pattern and therefore did not gain any marks for this question.

The following is an example of a high-scoring response:

It clearly displays any trend within the data while allowing for comparison to be made between the regions.

Question 13c.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 63 | 13 | 24 | 0.6 |

Students were required to outline a feature that could be added to their selected format in order to create a dynamic display of the comparison of annual rainfall for the three regions.

Common acceptable features were:

* drop-down menu to select the year required
* animation to play through the five years
* check boxes to select the regions required
* radio button to select one region
* cursor over graph (hotspot)
* filter data.

Students were then required to outline how the feature would be used (one mark). This may have included what data could be compared to, e.g. could switch between different regions or years.

A large number of students mentioned navigation as the feature, as the focus was on the one chart; they did not receive any marks for that response.

The following is an example of a high-scoring response.

The graph could have a checkbox feature that allows users to switch between the data visualisation of each region, and then select and choose the ones they wish to compare at each moment.

Question 14

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | Average |
| % | 72 | 12 | 12 | 2 | 2 | 0.5 |

To gain marks, students needed to propose two measurable factors and discuss how each factor could have contributed to the effectiveness of the project plan.

To obtain marks, responses needed to include two effectiveness terms (completeness, accuracy, maintainability and readability). The response then needed to link these terms to the project plan and explain how it would be assessed.

Acceptable higher-scoring responses were similar to:

* Completeness: were any significant tasks omitted from the project workflow? If any tasks were not included in the project plan, then this would have affected meeting the project due date with all deliverables.
* Accuracy: were tasks durations accurate? If durations were underestimated, then the project would have not run to time and the plan would not be effective.
* Maintainability: how easy was it to modify the Gantt chart? If the Gantt chart was difficult to modify, then it probably wasn’t going to assist in the management of the project.
* Readability: was it easy to see all tasks and their dependencies? If the chart was difficult to read, then it would not assist in meeting the project deadline.

Question 15

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | Average |
| % | 27 | 37 | 36 | 1.1 |

Students needed to state if they should be worried about a particular statement and in doing so include any relevant legal issues.

Marks were awarded for:

* stating that Sara should be concerned as it is breaking the Privacy Act 1988 (must include correct year)
* identifying the Australian Privacy Principle that it relates to (does not have to list the number)

The two principles that apply to this question are that the entity can only use or disclose personal data for the purpose for which it was collected unless the individual has given consent to disclose the data.

A large number of students were able to identify the Act that the issue related to; a smaller number were then able to explain what the issue was relating to that Act. A small number identified the wrong act and were not able to gain any marks. Students who stated that there was no issue did not receive any marks.

The following is an example of a high-scoring response.

Yes, she should be worried. Privacy Act 1988 may be breached. This law outlines that data should not be used for anything other than its intended purpose. If sara was to send her client data, she would breach the Privacy Act 1988.