Now Test Yourself: Answers and Mark Schemes (MS)

Learning outcome 1: Understand the tools and techniques that can be used to initiate and plan solutions

**Page 8**

1. Identify the second stage in the project life cycle. [1 mark]
   
   **MS** Correct answer only for 1 mark.
   
   • Planning

2. Identify and describe two constraints that could be defined during the initiation phase. [6 marks]
   
   **MS** Identification of two for 2 marks; 2 further marks for each description. Examples below:
   
   • Timescale for the completion of the project
   • Budget for the project provided by the client
   • Security requirements, including physical and logical and legislation implications
   • Hardware/software that should be used during the development of the final product, usually defined by the client
   • Hardware/software the final product should be compatible with, usually defined by the client

3. Identify two different types of user documentation that could be created during the evaluation phase. [2 marks]
   
   **MS** Two types of user documentation identified from the list below. 1 mark for each correct type.
   
   • Installation guides
   • User guides
   • Test plans
   • Security details

4. Describe one advantage of following a project life cycle that relates to the project team. [2 marks]
   
   **MS** Complete description for 2 marks. Example answers below:
   
   • The roles and responsibilities of each project team member are clearly defined.
   • Resources that can be used by the project team members are allocated at the start of the project.

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1. Why is there no interaction between the evaluation and initiation stages? [3 marks]
   
   **MS** Complete answer relating to the question for 3 marks. Example answer below.
   
   • When the evaluation phase has been completed, the project is finished.

2. Which phases interact with the execution phase? [2 marks]
   
   **MS** Identification of correct phases; correct answers only for 1 mark each.
   
   • Planning
   • Evaluation

3. Describe what is meant by 'interaction'. [3 marks]
   
   **MS** Complete description for 3 marks. Example answer below.
   
   • Interaction is how the phases of the project life cycle link together.

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1. Identify and describe one output from the initiation phase. [3 marks]
   
   **MS** Identification of one output for 1 mark, 2 further marks for description. Examples below:
   
   • Feasibility report that answers the questions asked during the phase. The report may include different proposed solutions, and considers the client-defined constraints and requirements.
   • Legislation implications, which will depend on the type of product being created and the assets being used. These may need to be reviewed during the project to ensure that the most up-to-date legislation is being considered.
• Phase review, which considers the feasibility report and decides whether the project can continue to the planning phase.

2 Identify two tasks that would be carried out during the planning phase review. [2 marks]
MS Two tasks identified from list below. 1 mark for each correct task.
• Consider the project plan, test plans and the constraints list.
• Check there are no omissions in the documents.
• Omissions and issues are resolved or return to initiation phase (iteration).
• Project plan, test plans and constraints list are checked and agreed by the client.

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1 What does the M in SMART stand for? [1 mark]
MS Correct answer only for 1 mark
• Measurable

2 Describe what is meant by the ‘time constraint’. [4 marks]
MS Complete description for 4 marks. Example answer below.
• The time constraint is defined by the client. This is usually the time given to complete the project and deliver a fully working and installed product.

3 Explain why it is important to set success criteria for a project. [4 marks]
MS Complete explanation for 4 marks. Example answer below.
• The project needs to be measured against success criteria to see if it has been successful. If measurable and realistic success criteria are set then the project is more likely to succeed. Success criteria can be generic or specific. Specific success criteria can increase the likelihood that the finished product will meet the needs of the client and therefore be successful.

Page 22
1 Describe the purpose of a visualisation diagram. [3 marks]
MS Complete description for 3 marks, example answer below
• To show what the final product will look like using a rough sketch or drawing. A visualisation diagram is used to plan a static product. They can also be used to show the format and layout of outputs from a product, or to help people understand numerical data.

2 Identify two components of a Gantt chart. [2 marks]
MS Two components identified from list below. 1 mark for each correct component.
• Date/days along the top
• Tasks down the left-hand side
• Blocks to represent the time allocated to each task
• Milestones as diamonds/triangles
• Dependent tasks
• Concurrent tasks

3 Describe one advantage and one disadvantage of using a mind map as a planning tool. [4 marks]
MS One advantage and one disadvantage described for 2 marks each. Example answers below:
• Easy to add ideas/tasks at any time
• Can help focus on the tasks and links between them
• Shows dependent tasks
• No time schedule defined
• Can be difficult for others to understand
• Does not show concurrent tasks
Learning outcome 3: Understand how data and information can be collected, stored and used

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1. For each of the examples, select an appropriate data type for storing it in a database:
   a) 28 March 1969 [1 mark]
   b) CB21 7WX [1 mark]
   c) Girl or Boy [1 mark]
   d) The name of your centre [1 mark]
   e) 567 [1 mark]

   **MS** Identification of correct data types for 1 mark each.
   - Date/text
   - Alphanumeric
   - Logical/Boolean
   - Text
   - Integer

2. Give one reason why a telephone number would be stored as the text data type. [2 marks]

   **MS** One correct reason provided for 2 marks. Example answer below.
   - Telephone numbers usually start with a 0 and can have spaces in them. The text data type allows a number to start with a 0 and for the inclusion of spaces.

3. Describe one difference between information and data. [2 marks]

   **MS** One difference described for 2 marks. Example answers below.
   - Data is raw facts and figures that have no meaning; information is data that has been processed and has a meaning.
   - Information is in context, while data has no context.
   - Data is unprocessed; it must be processed to become information.

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1. Compare the use of online and paper-based surveys. [4 marks]

   **MS** Two complete comparisons for 2 marks each. To be considered for the marks available it must be clear that the learners have made clear comparisons. Example answers below.
   - Surveys on paper can be completed by anyone who has a pen but an online survey requires access to a device to complete.
   - Paper surveys can be posted back to the survey owner, but an internet connection is needed to return an online survey.

2. Describe two differences between primary and secondary research. [4 marks]

   **MS** Two differences described for 2 marks each. Example answers below.
   - Primary research is carried out by someone involved in the project/research; secondary research has been carried out by someone else.
   - Primary research is specific to the purpose of the research, but secondary research may not fully meet the purpose because it has already been carried out.
   - Primary research may take a long time to complete as the data and information have to be collected from scratch, while secondary research doesn’t take very long as the data and information have already been collected by someone else.

3. Identify and describe one type of sensor. [3 marks]

   **MS** Identification of one sensor for 1 mark, 2 further marks for description. Examples below:
   - PIR/passive infrared, which work by detecting heat and can be part of a connected house. These can be used to turn lights on and off or activate burglar alarms.
   - Pressure sensors, which are activated by pressure going across a pressure mat. The data is automatically collected and stored.
Describe two advantages of using a consumer panel when collecting information about a new product. [4 marks]

MS

- The cost of consumer panel feedback can be low if online feedback methods are used.
- The feedback provided is specific to the product or service.
- Response rates are high, as members of the panel have agreed to take part.

Describe one advantage and one disadvantage of using a paper questionnaire to collect information. [4 marks]

MS

- Large numbers of people can be asked to fill in the same questionnaire/survey.
- Comparisons are easy to formulate (e.g. 75% of people liked the new company logo).
- Cheaper than interviews for a large number of people.
- The data and information must be manually input into the software package before any processing can be carried out. This can often introduce errors.
- A badly designed question may not get the data required in the right format.

Describe one advantage and one disadvantage of using mobile technology to access files and documents via the cloud. [4 marks]

MS

- Files and documents can be accessed via a range of devices including mobile devices such as smart phones and tablets that have wireless internet access enabled.
- People can work remotely/on the move and still access the files and documents needed to carry out their work.
- Internet access is required, so if no access is available, the files and documents cannot be accessed.
- Some files and documents may be large so may take a long time to download if the wireless/4G internet access being used has slow download speeds.

Describe one use of barcode scanners in a supermarket. [4 marks]

MS

- Barcode readers/scanners can be used in a Scan and Shop. The shopper accesses a mobile barcode device and uses this to scan the barcodes of the items they want to buy. When the shopping has finished, the barcode reader/scanner is used to scan a barcode that transfers the items bought to a checkout till. The items bought are listed and paid for by the shopper.

Compare the use of CDs and DVDs to store files. [4 marks]

MS

- A CD usually has a lower storage capacity than a DVD, so a DVD can store more files.
- A DVD has a faster write speed than a CD, so files can be written to it faster, meaning that if a DVD is being used to store a backup the process will take a shorter time.
3 Identify two uses of a USB memory stick. [2 marks]
MS Two uses identified from the list below. 1 mark for each correct use.
- To save a file as a backup
- To transfer files between devices

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1 Identify and describe two ways in which data could be used in a connected house. [6 marks]
MS Identification of two uses of data for 1 mark each, 2 further marks for each description. Examples below:
- Smart meters can send readings of how much gas and electricity are being used every few seconds. This data provides accurate bills to the customer and can be analysed by the suppliers.
- Door locks can report to the owner of the house and the security company if there is any unauthorised movement into or out of the house.

2 Explain how the data produced by viewing figures for a TV programme could be used when new TV shows are being created. [4 marks]
MS Complete explanation for 4 marks. Example answer below.
- The data can be analysed to see what type of TV programmes viewers like to watch. The age group and gender can also be seen. This will allow TV shows to be targeted at an age group/gender. The data will also show when viewers watch TV shows and how they are watched.

3 Discuss the advantages and drawbacks of the use of data in law enforcement. [8 marks]
MS A sample of indicative content is listed below. Candidates should be aware that their answer should include relevant examples, where appropriate, and the correct use of technical terms.
- Data can be shared between Police Forces and other law enforcement agencies.
- Data can be accessed from many different data stores, including those that hold Big Data.
- Checks can be done on vehicles using ANPR, where the requested data is provided almost instantly.
- Information about criminals from other Police Forces can be shared using the Police National Database (PND).
- If the data held is incorrect then incorrect information will be provided.
- Incorrect data and information can have a negative effect on people, for example people being arrested for crimes they did not commit.
- The data must be kept up-to-date; if it isn’t then incorrect information will be provided.

Learning outcome 4: Understand the factors to be considered when collecting and processing data and storing data/information

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1 Describe one difference between baiting and quid pro quo. [4 marks]
MS Complete description of the difference for 4 marks. Example answer below.
- Baiting tries to get victims to give the cyber-criminals the information they need. A promise of goods, for example free downloads of music or films, is given by the cyber-criminals to get the information needed. Quid pro quo also tries to get the victims to give information or carry out a task. The victims are offered a service rather than goods. This service may be to fix ‘alleged’ computer problems.

2 Describe the actions that could be taken to mitigate against the risk of a rootkit. [4 marks]
MS A description that includes at least two actions. Example answer below.
- Rootkits are difficult to detect as they are not usually detected by security software. Keeping security software up-to-date by installing the software updates, and not downloading suspicious files, are the only ways to avoid a rootkit from being installed.
3 Explain the motivation of a black hat hacker. [3 marks]

MS A complete explanation for 4 marks. Example answer below.
• The main motivation for a black hat hacker is money. A black hat hacker hacks into a computer system with malicious intent. This intent can include theft of data/information and selling onto criminals the data/information stolen. The hacker will be paid for this data/information.

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1 What is meant by the term ‘weak password’? [2 marks]

MS A complete definition of the term for 2 marks. Example answer below.
• A weak password is a password that can easily be found out or guessed by people and computer devices.

2 Describe one problem with using the manual update method for security software. [2 marks]

MS A description of one problem for 2 marks. Example answers below.
• The patch may not be downloaded as soon as it is released, meaning that the system may be vulnerable to attacks from new viruses.
• If updates and patches are missed, then the computer system is left open to attacks and threats and this could result in data being lost or stolen.

3 Explain one impact of an unsecured router. [3 marks]

MS A complete explanation of one impact for 3 marks. Example answer below.
• An unsecured router means that the internet access or the computer devices connected to the wi-fi are vulnerable. Data and information stored on the devices could be accessed by a cybersecurity attacker.

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1 What is meant by the term ‘identity theft’? [2 marks]

MS A complete definition for 2 marks. Example answer below.
• When personal details are stolen and are used to commit fraud, for example taking out a loan in someone’s name.

2 Describe one impact of data modification. [2 marks]

MS A complete description of one impact for 2 marks. Example answer below.
• A financial impact because financial data has been modified so the attacker can withdraw the modified amount of money, leaving the bank to make up the loss of money.

3 Explain the impacts of a Denial of Service (DoS) attack on a banking website. [6 marks]

MS A complete explanation covering at least two impacts. Example answer below.
• The bank will be impacted as they may lose business or data. If the bank website was the victim of a DoS attack, then customers who use that bank website would be unable to access their accounts, pay bills, transfer money or complete other online banking activities.

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1 Identify two consequences of a cyber-security attack. [2 marks]

MS Two consequences identified from list below. 1 mark for each correct consequence.
• Loss
• Disruption
• Safety

2 Explain the possible financial impact to individuals of the loss of their personal data. [4 marks]

MS Complete explanation of financial impact for 4 marks. Example answer below.
• Loss of money through identity theft occurring. Loans and credit cards could be taken out in a person’s name and they would be unaware of this. If they didn’t know about the loans/cards, their credit rating could be affected, because they wouldn’t make payments.
3 Describe one operational impact on a business as a consequence of disruption. [3 marks]
MS One complete description of an impact for 3 marks. Example answer below.
• The operational running of the business will be affected by the time taken to reinstall the back-up data. The time delay will mean the business cannot function normally, either between departments (internally) or with customers/suppliers (externally).

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1 Explain two reasons why a bank would back up its data in real time. [6 marks]
MS Two complete explanations for 3 marks each. Example answers below.
• A bank deals with money from people and organisations. If a cyber attack happened to a bank, limited amounts of financial data and information would be compromised.
• Bank transactions happen 24 hours a day, every day. A back-up would contain the most up-to-date data and information meaning that limited records of transactions would be lost if a cyber attack did happen.

2 Describe one problem with using a biometric access device. [2 marks]
MS One complete description of one problem for 2 marks. Example answer below.
• If the biometric access device was voice-activated, then if the person’s voice changed because they had a cold, access might be denied.

3 Identify two physical protection measures. [2 marks]
MS Two physical protection measures identified. 1 mark for each correct measure. Example answers below.
• Swipe/RFID cards or keypads
• Biometrics

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1 In a business, what is the difference between the data controller and a data subject? [2 marks]
MS A complete difference for 2 marks. Example answer below.
• A data controller applies for permission to collect and store data. The data subject is the person the data is being stored about.

2 Identify the act that should be considered when holding personal details. [1 mark]
MS Correct act identified for 1 mark. Correct answer only given below.
• Data Protection Act/DPA

3 Discuss how the Data Protection Act tries to protect individuals whose personal data is stored by a business. [10 marks]
MS A sample of indicative content is listed below. Candidates should be aware that their answer should include relevant examples, where appropriate, and the correct use of technical terms.
• Rules are set out relating to how the data can be collected, stored and processed. If the data subject thinks their data is being misused, then they can complain and seek compensation.
• Data subjects have the right to access any data that is being held about them and to have any errors/inaccuracies or omission corrected.
• Data subjects have the right to know what data is being held about them.
• The business holding the data must keep it secure and put in place security measures.
• The data subject has the right to have their data removed if they no longer deal with the business.
4 Explain the term ‘hacking’. [4 marks]

MS A complete explanation of the term for 4 marks. Example answer below.
- When a person, the hacker, finds weaknesses or vulnerabilities in a computer system. These are then used to access the computer system to gain unauthorised access: hacking. Information and data may be stolen, modified or manipulated as part of the hacking attack.

5 Describe how the Computer Misuse Act could be used by a business if a virus was deliberately sent to their computer network. [4 marks]

MS A complete description relating to the use of the CMA for 4 marks. Example answer below.
- Unauthorised access with the intent to impair the operation of the network may have taken place as a result of the virus. The virus may alter how the network operates, or damage the data. The business would be able to have the attacker who sent the virus sent to prison, given a fine or both. However, to prosecute under the CMA the attacker has to be found. This can be difficult as many attackers use the dark web to carry out their activities and hide their identities.

6 Describe how a business can comply with the Copyright, Designs and Patents Act when purchasing software. [4 marks]

MS A complete description for 4 marks. Example answer below.
- The correct licence must be purchased. This may depend on how many computer devices the software is to be installed on. For example, if the business buys software with licences for two computer devices, but installs it on six devices, they have broken the Copyright, Designs and Patents Act.

7 State two actions that should be taken if a copyrighted image is to be used in an on-screen presentation. [2 marks]

MS Two actions stated for 1 mark each. Examples below.
- Permission from the copyright author should be obtained.
- The name of the copyright holder should be acknowledged.

8 Describe two actions that an employer needs to carry out to comply with the Health and Safety Act. [4 marks]

MS Complete descriptions of two actions for 2 marks each. Example answers below.
- Plan employees’ work so that there are breaks or changes of activity.
- Analyse workstations and assess and reduce risks.

9 Explain how the Freedom of Information Act differs from the Data Protection Act. [4 marks]

MS A complete explanation of the difference for 4 marks. Example answer below.
- The FoI Act covers any recorded information held by a public authority. This includes that held in printed documents, computer files, photographs and audio/video recordings. The FoI Act does not relate to any data and information held about the person making the request. To see data and information held about a person, then a request under the DPA must be made.

10 Explain what is meant by the term ‘defamation of character’. [4 marks]

MS A complete explanation of the term for 4 marks. Example answer below.
- Where an untrue or false statement is made by one person about another. This may be made via social media or other methods. The statement tries to discredit a person’s character or reputation.

1 Describe how fake news could be used on a website. [3 marks]

MS A complete description for 3 marks. Example answer below.
- Fake news is information that has been made up by the people who have written it. Fake news can be used on a website to provide untrue news that can be biased towards the views of the author. Fake news is also biased and unreliable.
2. **What is meant by the term ‘reliability’?** [2 marks]

**MS**
A complete definition for 2 marks. Example answer below.

- Reliability is how much value the data and information have. The less reliable they are, the less valuable they are. Incorrect and out-of-date data and information can be seen as unreliable.

3. **Identify two ways in which to check the bias of a website.** [2 marks]

**MS**
Identification of two ways for 1 mark each. Example answers below.

- The information focuses on just one side of the discussion.
- The information appears to be based on emotions rather than fact and logic.

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**Learning outcome 6: Understand the different methods of processing data and presenting information**

**Page 71**

1. **Describe two advantages of using a spreadsheet to process numerical data.** [4 marks]

**MS**
Two advantages described for 2 marks each. Example answers below.

- Formulae can be used to calculate and recalculate totals.
- The data can be presented in a graph to make spotting trends and patterns easier.

2. **Explain how a database can be used to store details about the stock and suppliers of a shop.** [6 marks]

**MS**
A complete explanation for 6 marks. Example answer below.

- The database can be used to edit details about suppliers and stock if any changes need to be made. If the database has relational tables, then any changes made to the data stored in one table will be automatically changed in the other tables. Validation can be used to make sure that the data is in the appropriate and required format. Queries can be run on the database to search for records that meet specified criteria; the results of these queries can be presented in an automatically generated report.

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1. **Compare the use of a spreadsheet and database for presenting numerical data.** [6 marks]

**MS**
Two complete comparisons for 3 marks each. To be considered for the marks available it must be clear that the learners have made clear comparisons. Example answers below.

- A spreadsheet is designed to store and process numerical data, whereas a database can store numerical data, but its main purpose is to store data and records most of which will be in a text format.
- A spreadsheet can be used with limited training as there are inbuilt functions and formulae that can assist the user. Specialist knowledge and training will be needed to use a database as no inbuilt functions and formulae are included in the software.

2. **Describe one advantage and one disadvantage of using word-processing software to create a business report** [4 marks]

**MS**
Description of one advantage and one disadvantage for 2 marks each. Example answers below.

- A pre-defined template for a report can be created and saved. This means that all reports will meet the organisation’s house style.
- The use of features such as borders and text layout can detract from the message of the report if they are not used appropriately.

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1. **Describe why colour should be considered when creating an on-screen presentation.** [2 marks]

**MS**
A description for 2 marks. Example answer below.

- Different colours can be associated with different genders: they can be seen as male, female or gender-neutral. The target audience should be considered when choosing colours, with the colours selected relating to the target audience.
2 Explain how an unstable internet connection may affect users accessing data and information stored on the cloud. [4 marks]

MS A complete explanation for 4 marks. Example answer below.
- An unstable internet connection may cause the access to be limited. The data and information may take some time to download, or if the file is large then buffering may occur. If the website where the data and information are stored is large, then the website may take a long time to display on the computer device, with the data and information not being able to be accessed.

3 Discuss how real-time data (RTD) relating to weather can be used by the emergency services. [10 marks]

MS A sample of indicative content is listed below. Candidates should be aware that their answer should include relevant examples, where appropriate, and the correct use of technical terms.
- Real-time weather data can help the emergency services plan and allocate resources.
- Warning can be given to road users about the future state of roads and the impact the weather may have.
- Extra staff can be called into work to assist with the impact of the weather.
- Specialist equipment, such as 4×4s and all-terrain vehicles, can be allocated to the potentially worst hit areas.
- Plans can be made to ensure that staff can get to work, and sleep at work if the weather is too bad for them to get home.
- Emergency refuges can be arranged with food and drink, to keep people safe who have been affected by the weather.

4 Describe one advantage and one disadvantage of using multimedia as a distribution channel. [4 marks]

MS Description of one advantage and one disadvantage for 2 marks each. Example answers below.
- Different elements can be used: sound, text, video, animations.
- If the quality of the multimedia is low, then the message may not be perceived as reliable.

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1 A presentation is to be shown at a meeting in a village hall.
   a) Identify the hardware that will be needed. [3 marks]
   b) Describe why each hardware device you have identified will be needed. [6 marks]

MS Three pieces of hardware identified for 1 mark each; 2 further marks for each correct description.
- Computer device: the presentation will be stored on the device and will be needed to plug the projector into.
- Projector: to connect to the computer device so that the presentation can be shown on the screen.
- Screen: to show the presentation to the audience in a large format so that all of the audience can see it.

2 Identify and describe two types of software that may be required to view an integrated document. [6 marks]

MS Identification of two different types of software for 1 mark each; 2 further marks for description. Examples below:
- Word-processing software to create and edit the main text of the integrated document
- Spreadsheet software to create graphs and charts, which can then be hyperlinked in the document

3 Describe one problem that may occur when a resource is to be downloaded from the cloud. [2 marks]

MS Complete description of one problem for 2 marks. Example answer below.
- Buffering may occur if the internet connection is too slow or the file size of the resource is too big.