Cambridge Technicals
IT

Unit 1: Fundamentals of IT

Level 3 Cambridge Technical in IT
05838 – 05842 & 05877

Mark Scheme for January 2023

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

MARKING INSTRUCTIONS

PREPARATION FOR MARKING
RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **number of required** standardisation responses.

   YOU MUST MARK 5 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the traditional 40% Batch 1 and 100% Batch 2 deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone or by email.

5. **Crossed Out Responses**
   Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

Rubric Error Responses – Optional Questions
Where candidates have a choice of questions across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the highest mark from those awarded. (The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)

Multiple Choice Question Responses
When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then **no mark** should be awarded (as it is not possible to determine which was the first response selected by the candidate). When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses
When a candidate provides contradictory responses, then **no mark** should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)
Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. (The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)

Short Answer Questions (requiring a more developed response, worth **two or more marks**)
If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)
Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6.   Always check the pages (and additional lined pages if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there then **add an annotation** to confirm that the work has been seen.

7.   Award No Response (NR) if:
  • there is nothing written in the answer space

  Award Zero '0' if:
  • anything is written in the answer space and is not worthy of credit (this includes text and symbols).

8.   The RM Assessor **comments box** is used by your team leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**

  If you have any questions or comments for your team leader, use the phone, the RM Assessor messaging system, or e-mail.

9.   Assistant Examiners will email a brief report on the performance of candidates to your Team Leader (Supervisor) by the end of the marking period. Your report should contain notes on particular strength displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

10. For answers marked by levels of response:
  a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
  b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

11. **Annotations**

Annotation	Meaning
✔	Tick – correct answer
✘	Cross – incorrect answer
L1	Level 1
L2	Level 2
L3	Level 3
BOD	Benefit of doubt (This **does** count as a mark – so do not 'tick' as well)
NBOD	Benefit of doubt not given
BP	Blank Page
	Highlight
VG	Too vague
NAQ	Not answered question
REP	Repeat
SEEN or	Noted but no credit given

12. **Subject-specific Marking Instructions**

INTRODUCTION

Your first task as an Examiner is to become thoroughly familiar with the material on which the examination depends. This material includes:
* the specification, especially the assessment objectives

* the question paper

* the mark scheme.

You should ensure that you have copies of these materials.

You should ensure also that you are familiar with the administrative procedures related to the marking process. These are set out in the OCR booklet **Instructions for Examiners**. If you are examining for the first time, please read carefully **Appendix 5 Introduction to Script Marking: Notes for New Examiners**.

Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

Question			Answer	Marks	Guidance
1		**B**	Flash drive	1	
2		**A**	Cache	1	
3		**B**	Modem	1	
4		**D**	Integrated design environment (IDE)	1	
5		**C**	Video and voice communication	1	
6		**A**	Baseline	1	
7		**C**	Hypervisor	1	
8		**D**	Subnet mask	1	
9		**B**	To connect several LANs together	1	
10		**B**	Eye contact	1	
11		**A**	Acceptable Use Policy	1	
12		**C**	Social engineering	1	
13		**C**	Firewall	1	
14		**C**	Problem solving	1	
15		**B**	Short message service (SMS)	1	

Question			Answer	Marks	Guidance
16	**(a)**		• Portability (1st) so can be carried to different disasters easily (1) • Integrated Screen (1st) so no need for separate monitor (1) • Battery power(1st) no need for separate power supply in a disaster zone (1) • Integrated camera (1st) to allow for video calls when away (1) • Integrated speakers (1st) for audio communications to be heard (1) • Integrated network card (1st) for connecting to the internet/wifi (1) • Integrated keyboard/Trackpad (1st) for inputting data (1)	6	Two marks per laptop feature 1st mark MUST identify the feature 2nd mark for description of features suitability DNA description without identification Description must be specific to the feature identified so generic answers are TV
	(b)		• Connect phone to the laptop (1) so phone data signal creates a Wi-Fi hotspot (1) • USB cable connection between phone and the laptop (1) to use phone as Wi-Fi hotspot (1) • Use 3G/4G/5G/mobile data on phone (1) to create a Wi-Fi hotspot (1)	2	Two marks for detailed explanation.
	(c)		• Data packets flow (1) into switch which directs packets (1) to where needed rather than every port (1) • Data from router (1) is sent to correct device by the switch (1) using device address (1)	3	Three marks for detailed explanation. Third mark must show efficiency over use of hub
17			• e) Define theory of possible cause (1) • a) Test theory (1) • c) Create an action plan (1) • d) Verify problem (1) • b) Document results of investigation (1)	5	One mark per correct step in correct place in plan Correct answer only Candidate may write letter only If more than one answer in each step - no marks

Question			Answer	Marks	Guidance
18*			Indicative Content: **Benefits of off the shelf operating system** • Readily available • Upgrades available • Compatible with wide range of hardware and software which may have already been purchased • Less staff training needed as probably more widely used so more familiar • Development cost is reduced as will be shared around range of purchasers • No development time required • Cost can be lower than bespoke • Regular security updates **Limitations of off the shelf operating system** • Could require annual fee for use • Could require annual fee for upgrades • Can contain lots of features not needed / bloatware • May slow performance down due to bloatware • May not meet the PDR requirements fully	10	**Level 3 [7- 10 marks]** The learner has discussed the benefits **and** limitations to PDR of using an off the shelf operating system in context. More than one benefit and limitation will have been discussed. Subject specific terminology and knowledge will be clearly used to support and inform the discussion. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 [4 – 6 marks]** The learner has described the benefit(s) **and / or** limitation(s) of PDR using an off the shelf operating system. At the bottom of the mark band, the learner may describe generic aspects off the shelf operating systems. *There is a line of reasoning presented with some structure. The information presented is for the most part relevant and supported by some evidence.* **Level 1 [1 – 3 marks]** The learner has identified generic points in relation to off the shelf operating systems. At the bottom of the mark band, the learner may have simply provided a single point.

Question				Answer	Marks	Guidance
						Subject specific terminology may be limited or missing.
						The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.
						0 marks = Nothing worthy of credit.

Question			Answer	Marks	Guidance
19	**(a)**		Email (1st) • To send request for resources about disaster (1) to the main office in London (1) • To send attachments (1) of images/reports from the disaster site.(1) • Any other valid suggestion Web (1st) • To video call from disaster area (1) to the main office in London (1) • To search for resources online (1) with local suppliers in the disaster area (1) • Any other valid suggestion Blogs/Vlogs (1st) • To provide a continual update on situation (1) to NGOs/London office (1) • Any other valid suggestion Instant messaging (1st) • To communicate in real-time with other specialists (1) so that they can share ideas (1) • Any other valid suggestion Presentation software (1st) • To update a group of people in the disaster zone (1) about the current situation (1) • Any other valid suggestion	6	Three marks per communication technology 1st mark for identification of technology 2nd and 3rd marks for detailed expansion DNA Communication **Methods** (2.5 in the specification) as the question asks for Communication **Technology** (4.2 in the specification) DNA brand names

Question			Answer	Marks	Guidance
	(b)		• Data broken down into packets (1) packets routed along different network pathways (1) packets arrive at other end of pathway based on address (1) packets reassembled in correct order (1) • Any other valid suggestion	3	Three marks for detailed explanation.
	(c)		• SMTP keeps email on server (1) POP downloads email onto computer (1) • SMTP transfers emails between servers (1) POP deletes email on server once downloaded (1) • SMTP mainly sends/forwards emails between servers (1) POP retrieves/downloads emails from server to email client (1) • Any other valid suggestion	2	Two marks for detailed explanation of difference. Must include both SMTP and POP for full marks

Question	Answer	Marks	Guidance
20*	**Indicative Content:** **Benefits of cloud virtualisation** • Outsourced so technical responsibilities and costs are supplier's role • Minimal technical staff skills required at PDR – staff costs reduced (outsourced) • Scalable depending on need • Pay-as-you-go • No significant initial hardware costs • Can be accessed 24/7 in any location • PDR can focus on the charity work **Limitations of cloud virtualisation** • Private cloud is expensive to set up and maintain • Requires sufficient bandwidth for data flow speeds to be maintained • Possible increased security risks as data all held by third party/off site • Dependant on the cloud provider for all services needed • Contingency plans needed for system/internet/cloud downtime	10	**Level 3 [7- 10 marks]** The learner has discussed the benefits **and** limitations to PDR of using cloud virtualisation in **context.** More than one benefit and limitation will have been discussed Subject specific terminology and knowledge will be clearly used to support and inform the discussion. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 [4 – 6 marks]** The learner has described at the benefits(s) **and / or** limitations(s) to PDR of using cloud virtualisation. At the bottom of the mark band, the learner may describe generic aspects of cloud virtualisation. *There is a line of reasoning presented with some structure. The information presented is for the most part relevant and supported by some evidence.* **Level 1 [1 – 3 marks]** The learner has identified generic points in relation to cloud virtualisation. At the bottom of the mark band, the learner may have simply provided a single point.

Question			Answer	Marks	Guidance
					Subject specific terminology may be limited or missing. *The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.* **0 marks** = Nothing worthy of credit.

Question			Answer	Marks	Guidance
21			Management Information System • Collect/Store/Analyse/present data (1) to allow a business decision making process to take place (1) • Carry out administrative tasks (1) that allow a business to operate (1) • Any other valid suggestion Standard Operating Procedure • Specific processes carried out (1) within an organisation/business (1) • Set of rules to follow (1) so that all staff know what to do with system (1) • Set of processes that need to be followed (1) to comply with legal requirements (1) • Any other valid suggestion Help Desk • Single point of contact (1) to support customers/staff of an organisation (1) • Real-time support for users (1) provided by trained members of staff/ automated processes (1) • AI / Chatbot support for users (1) to answer FAQs (1) • Any other valid suggestion	6	Two marks per explanation DNA manages information.
22	(a)		• Charity will collect/ hold data abouts specialists (1) which needs to be secure to comply with legislation (1) • The charity will hold financial data (1) which needs to be protected from hackers (1) • If the charity did not protect their data (1) they would have a bad reputation and lose money (1)	2	Two marks for detailed explanation.

Question			Answer	Marks	Guidance
	(b)		• Back up information regularly (1) • Have a disaster recovery plan (1) • Train staff to handle the information securely (1) • Introduce AUP / Code of conduct • Install Anti-virus / Anti-spyware • Install Firewall • Introduce permissions controls • Introduce username/password controls • Use encryption	1	DNA Digital security measures (too vague)

Question			Answer	Marks	Guidance
	(c)		Locks (1st) • Laptops could be locked to tables (1) to stop them being stolen (1) • Can make sure that the laptop could not be opened without a key (1) to prevent access to the laptop contents. (1) • Any other valid suggestion Biometrics (1st) • Fingerprint scanners could be installed (1) only allowing authorised personal to login to the laptop (1). • Cameras could be used with facial recognition (1) to prevent unauthorised access to the laptop contents (1) • Any other valid suggestion RFIDS (1st) • In ID cards of specialists that need to be scanned (1) to log onto the laptop (1) • Attached to the laptop so that it can be tracked (1) so that its location is always known (1) • Any other valid suggestion Tokens (1st) • Specialists use a token to access laptop (1) combined with their passwords (1) • Any other valid suggestion Privacy screens(1st) • Can be placed on the screens when in use (1) to prevent shoulder surfing by others (1) • Any other valid suggestion	6	Three marks per physical security methods 1st mark for identification of method 2nd and 3rd marks for description Security method can be applied in range of situations based on question: • Stop theft. • Prevent access to data. • Prevent sight of data being entered.

Question			Answer	Marks	Guidance
	(d)		Environment Act (1st) • Must ensure that old equipment is taken (1) to a licensed disposal centre (1) • Any other valid suggestion Environmental Protection Act (1st) • Must ensure that old equipment is taken (1) to a licensed disposal centre (1) • Must ensure that old equipment is stored safely (1) so that no chemical leakage takes place (1) • Any other valid suggestion Hazardous Waste (England and Wales Regulations) 2005 (1st) • Must notify the authorities (1) as a waste producer (1) • Any other valid suggestion Waste Electrical and Electronic Equipment directive (WEEE)(1st) • Must ensure that old equipment is taken (1) to a licensed disposal centre (1) • Any other valid suggestion General Data Protection Regulation (GDPR)/ Data Protection Act (DPA) (1st) • Data must be permanently deleted/erased from device (1) before it is safely disposed of (1) • Hard disks are electronically wiped (1) before they are disposed of by licensed company (1) • Any other valid suggestion	3	1st mark for identification of legislation 2nd and 3rd marks for description of how PDR can comply with legislation. Compliance description must match legislation identified.