Unit 1 – Mark scheme

Question number	Answer	Additional guidance	Mark
1(a)(i)	Award **one** mark for each descriptive point up to a maximum of **two** marks for **each** linked description. • Anika could use online applications (1) to allow her to work collaboratively (1). • Anika could use syncing software (1) to keep documents on the server at the education centre synchronised/up to date (1). • Anika could use a mobile phone (1), which could act as a hotspot to access the internet/documents from another device (1). • Anika could use VoIP (1) to speak to/video conference with her colleagues and supervisor (1). • Anika could use publically available Wi-Fi to access the internet (1) to exchange emails (1) with her colleagues. • Anika could use her mobile phone (1) to take messages from colleagues (1) when she is teaching. • Anika could use cloud-based solutions (1) for all her resources that she could access from both locations (1), either the schools or centre.	Any appropriate digital device will suffice. Accept any other appropriate response.	**4**

Question number	Answer	Mark
1(a)(ii)	Award **one** mark for an identified benefit and **one** mark for justification/expansion up to a maximum of **two** marks. • Reduction of overheads (1) because the regional educational centre can reduce the amount of floor space/staff facilities/parking (1). • Expand/can employ more teachers/cover a wider region/ (1) because they are not restrained by physical space/location (1). • Increase in productivity (1) because teachers can work more effectively/share information/support each other when not in the same place/data is in sync (1).	**2**

Question number	Answer	Mark
1(b)(i)	C	1

Question number	Answer	Mark
1(b)(ii)	A	1

Question number	Answers	Additional guidance	Mark
1(c)	Award **one** mark for any of the following up to a maximum of **four** marks. • A temperature sensor inside the pacifier that reads the temperature (1). • A moisture sensor that activates the pacifier (1). • A wireless transmitter in the pacifier sends data/temperature to the smartphone app (1). • A radio frequency identification (RFID) transmitter in the pacifier enables it to be found if lost (1). • An LED light to show when it is on (1). • An LED display to show the temperature (1). • A speaker that sounds if the temperature goes too high (1). • An app automatically sends an alert message if the temperature goes too high (1).	Accept Bluetooth, WI-FI, GPS as plausible options for location. Phone application can be awarded only once for any functionality.	4

Question number	Answer	Mark
1(d)	Award **one** mark for a benefit identified and **one** mark for justification/expansion up to a maximum of two marks for **each** response. • The user does not have to carry more than one device (1) so is easier to run with (1). • The device collates data on aspects of the runner's performance (1) so that it can all be viewed conveniently in one place (1). • Combined technologies share resources/battery/processor/ (1) so is more efficient/easier to charge up (1).	4

Question number	Answer	Mark
2(a)	Award **one** mark for a reason identified and **one** mark for justification/expansion up to a maximum of **two** marks for **each** response. • The responsibility for keeping the data safe and available by the host gives an extra level of assurance to the Bank (1) because the host has to implement appropriate disaster recovery procedures and maintenance of service (1). • It provides scalability/expansion (1) because new storage can be bought online (1). • There is no need to train personnel in the specialised technology needed (1) because technical details are taken care of by the host (1).	**4**

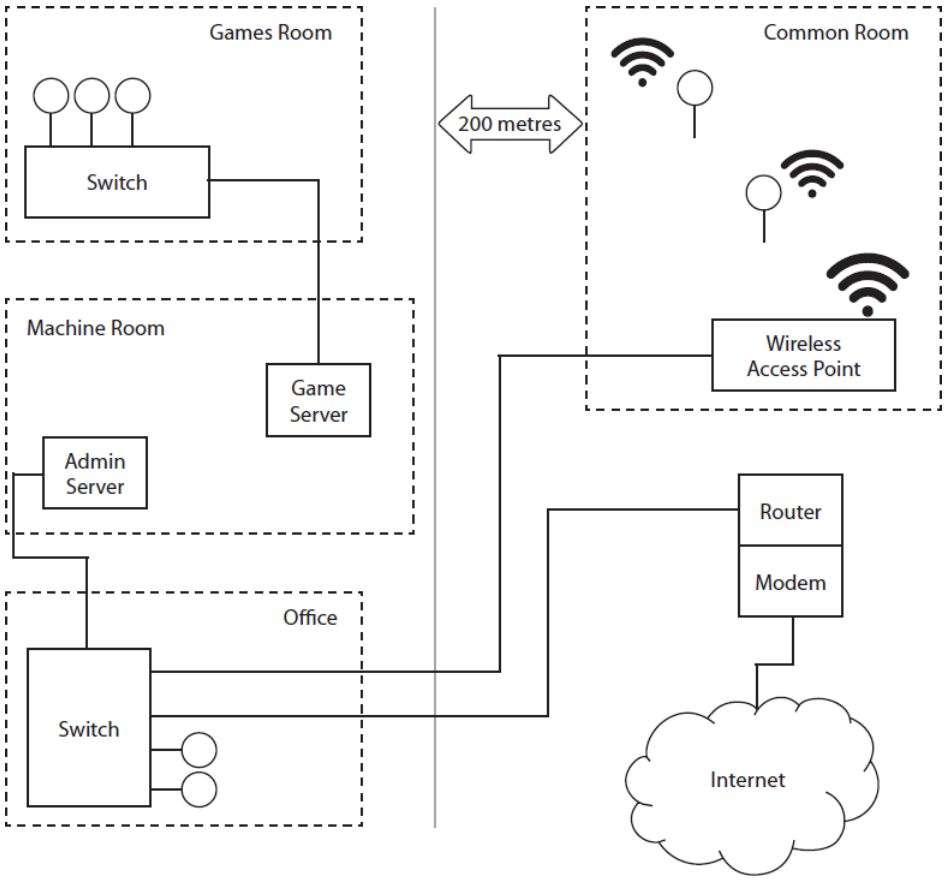
Question number	Answer	Mark
2(b)	Award **one** mark for each descriptive point up to a maximum of **two** marks for a linked description. • An organisation negotiates a price for the software and a number of seats/unique keys (1). An activation server is visited during the installation process, to assign a seat/unique key to this installation (1). • The number of seats/unique keys for the organisation is fixed (1). Once the fixed number of seats/unique keys is used, no more activations can take place (1). • The number of seats/unique keys for the organisation is fixed (1), but more users are allowed as long as the total number active at one time does not exceed number of seats (1).	**2**

Question number	Answer	Additional guidance	Mark
2(c)	Award **one** mark for each descriptive point up to a maximum of **four** marks for a linked description. • The employee logs onto the system using a username and password combination (1). This is followed by a text message (1) to the employee phone, giving a unique number/PIN (1), which the employee types into the system before being granted access (1). • The employee swipes a card (1) into a reader attached to a networked machine (1). The employee is presented with a screen to type in a user name and password (1). If both steps match those on file, then access is granted (1). • The employee swipes their finger (1) over a reader attached to a networked machine (1). The employee is presented with a set of security questions (1), like 'name of first pet' that must match those on file before gaining access (1).	What the user knows (1) such as password, PIN, mother's last name, name of first pet, or other previously registered secret detail. What the user has possession of (1) such as a card, a phone, a dongle, a fob. User characteristics (1) such as a biometric signature, fingerprint, voice print, iris scan, face recognition.	**4**

Question number	Answer	Mark
2(d)	Award **one** mark for any of the following up to a maximum of **two** marks. • Slow access speeds (1). • Poor literacy (1). • Poor digital skills (1). • Physical/mental disabilities (1). • Financial barriers (1). • Lack of internet access (1). • Lack of trust in the service (security scares) (1).	**2**

Question number	Answer	Mark
3(a)	Award **one** mark for each descriptive point up to a maximum of **four** marks for a linked description. The sending computer must pass data down through each successive layer of the model until it reaches the bottom/physical layer (1). After travelling across the physical media to the receiver (1), the data must then pass back up through the layers until arriving at the matching layer of the sender (1).	**3**

Question number	Answer	Mark
3(b)	Award **one** mark for each device correctly identified on the diagram up to a maximum of **nine** marks. The diagram shows the functionality – the location of particular devices may vary. **Games room** A machine performing the role of a server for the game (this can be anywhere in the diagram) (1). The games server is attached to a switch (1). The games room is isolated from the rest of the network/not linked to the main routing device (1). **Common room** A wireless access point in or near the common room (1). **Office** A machine performing the role of a server for the admin team (1). A machine is attached to a switch (1). **Internet cloud** A modem connected to the internet cloud (1). A router connected to the modem (1). **Machine room** Either the game server or the administration server, or both, goes into the machine room (1). The diagram on the next page is indicative only. Other configurations may be valid and should be rewarded in line with the mark scheme following the diagram.	**9**

Question number	Answer	Mark
3(b) *Cont.*		

Question number	Indicative content	Mark
3(c)	• Server-side scripting would be needed to access a bookings database. This means that the server processes the script rather than the client machine. • The server scripts can be written in PHP, ASP, Python. • The server script could find the appropriate free dates, put them into a table in a dynamic web page, and send the page back to the client. • Client-side scripting could be used to add dynamic features to the webpage. • Client-side scripting would be needed to validate input, items for the booking, such as telephone number and email address. • Client scripts can be written in JavaScript. They could include a date picker. • Client-side scripting uses the client machine's processing power. This could be used instead of sending every input back to the server to be processed.	6

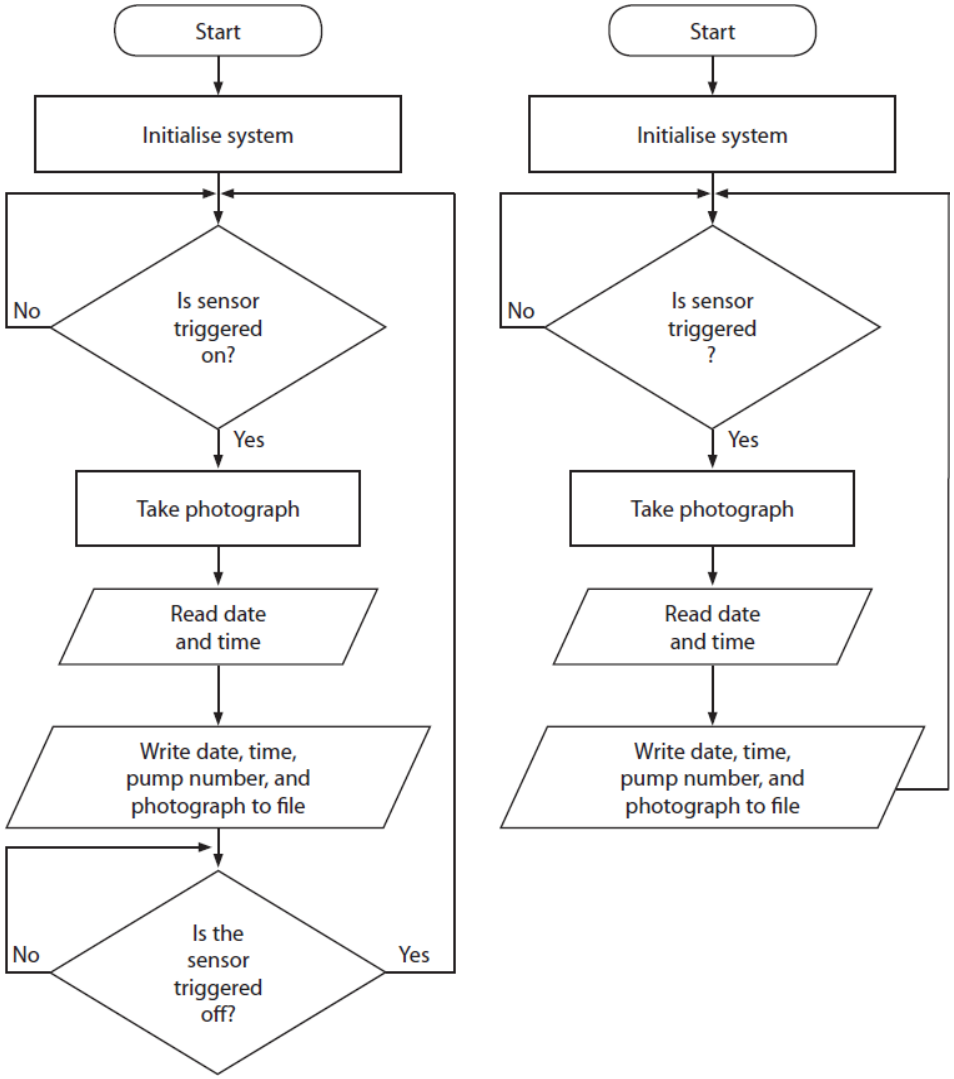
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–2	• Demonstrates limited knowledge and understanding, some of which may be inaccurate. • Applies understanding with limited coherence to produce a response that lacks development.
Level 2	3-4	• Demonstrates knowledge and understanding, which is mostly relevant and may include some inaccuracies. • Applies understanding to make some coherent connections and a partially developed response.
Level 3	5-6	• Demonstrates accurate and relevant knowledge and understanding throughout. • Applies understanding coherently to produce a fully developed response.

Question number	Answer	Mark
4(ai)	Award **one** mark for a difference identified and **one** mark for justification/expansion up to a maximum of **two** marks. • Data comes in many forms such as numbers, texts, and dates (1) whereas information is a higher level of abstraction than data (1). • In itself, data has no meaning (1), whereas information implies giving meaning to data (1).	**2**

Question number	Answer	Mark
4(aii)	Award **one** mark for each correctly identified example up to a maximum of **two** marks. **Data** Any individual data item without the field name/context (1) e.g. 'Jones', '93210'. **Information** Any individual item of information (1) e.g. the customer's last name is Jones, the customer's ID is 93210.	**2**

Question number	Answer	Additional guidance	Mark
4(b)	Award **one** mark for each correct part of the query up to a maximum of **six** marks. • Selecting required fields from the correct tables (1). • Counting the number of occurrences (1). • Identifying the matching fields in both tables (inner join) (1). • Grouping by housekeeper (1). • Descending order by count (1). • Use of the month function on the date field (1). Indicative content: select firstname, lastname, count(*) from tbl_cleanedby, tbl_housekeepers where month(date)=12 and idhousekeepers=housekeeper group by housekeeper order by count(*) desc; select firstname, lastname, count(*) as numrooms from tbl_cleanedby inner join tbl_housekeepers on idhousekeepers=housekeeper where month(date)=12 group by housekeeper order by numrooms desc; select firstname, lastname, count(*) as numrooms from tbl_cleanedby, tbl_housekeepers where month(date)=12 and idhousekeepers=housekeeper group by housekeeper order by numrooms desc.	Award marks with minor errors in syntax as long as the intent is clear.	**6**

Question number	Answer	Additional guidance	Mark
5(a)	Award **one** mark for each correctly named item up to a maximum of **six** marks. Items A-E must be nouns. Item F must be a verb. A. Fuel type (1) B. Fuel volume (1) C. Fuel price (1) D. Pump number (1) E. Cash/money (1) F. Print receipt (1)	Accept any equivalent word for the same concept. Items A and B could be reversed.	**6**

Question number	Answer	Mark
5(b)	Award **one** mark for each correctly identified part of the flowchart up to maximum of **four** marks. Flow chart includes a function to: • reset the sensor (1) • trigger an event and define the loop (1) • capture data – photo, date and time (1) • store data (1). Award **one** mark for use of correct conventions (1). Award **one** mark for a logical and functional process (1). Other solutions may exist. 	**6**

Question number	Indicative content	Additional guidance	Mark
6	Responses should be in relationship to the context of the question. Privacy • True privacy can be controlled only by the individual user through their settings. • Members may be giving away some rights to privacy (knowingly or unknowingly). • Once information is published in an online community, it is very difficult to get it removed. • Content of exchanges may be analysed to generate profiles to be used for other purposes (monetisation). • Introductions/links can be made between different people in the community, forming networks. • Unsolicited contacts from other members of the community. • Profiles could be cloned and abused. Monetisation opportunities • Online community owners may sell membership details stored in database. • Online community owners may data mine membership details to identify targets for promotions. • Online community owners may add advertising to website interface to promote click-through revenue. • Online community owners may sell advertising space on website directly to merchants. • Online community owners may advertise services, some of which may be targeted and helpful. • Members can keep CVs updated online for potential employers to see. Trustworthiness • Members may rank the trustworthiness or knowledge of a contributor based on votes from the community. • Popularity might not be a good proxy for accuracy or reliability. • Popularity of contributors might drive other users to the site which could create a more vibrant and supportive community.	Examples may be used if they are not duplicated and fit one of the categories in the indicative content.	**12**

Question number	Indicative content	Additional guidance	Mark
6 ***Cont.***	Professional development • Contacts in other companies can be made, which may lead to further employment. • Courses and workshops may be offered/advertised, which could be useful for learning. • Other professionals could be called on for help/support/discussion/develop knowledge in new areas.		

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–4	• Demonstrates limited knowledge and understanding, some of which may be inaccurate. • Applies understanding with limited coherence to produce a response that lacks development. • Demonstrates limited awareness of competing arguments. Conclusion, if present, is generic or unsupported.
Level 2	5-8	• Demonstrates knowledge and understanding, which is mostly relevant and may include some inaccuracies. • Applies understanding to make some coherent connections and a partially developed response. • Demonstrates some awareness of competing arguments, but this may be unbalanced, and partially supports conclusion with evidence.
Level 3	9-12	• Demonstrates accurate and relevant knowledge and understanding throughout. • Applies understanding coherently to produce a fully developed response. • Demonstrates an awareness of competing arguments and supports conclusion with evidence.