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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Theory

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1 hour 30 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [].
- No marks will be awarded for using brand names of software packages or hardware.

This document has 12 pages.



Chapter 8 - Storage devices and media

- 1 Circle **two** solid-state storage devices.

☒ Actuator

☒ Cloud

☒ CD-ROM drive

☒ DVD drive

☒ HDD

Pen drive

☒ Sensor

SSD

[2]

Chapter 21: Website Authoring

- 2 Complete each of the following sentences about web development layers.

- (a) The layer used to create the structure of a web page is called

Content

[1]

- (b) The layer used to display and format elements within a web page is called

Presentation

[1]

- (c) The layer that is a scripting language to control elements within a web page is called

Behaviour

[1]

Chapter 4: Networks and the effects of using them

- 3 A student is able to access a secure area of the school's website using zero login.

- (a) Explain what is meant by zero login.

- It is an authentication method

- ability to login to a computer system without typing a password

others - Security method to protect the resources

[2]

- (b) Biometrics could be used as another method of accessing the secure area.

State **three** examples of biometric methods.

Chapter 8: Safety and Security

1 Face recognition

2 Voice recognition

3 Iris recognition

[3]





- 4 Discuss the positive and negative effects of using microprocessor-controlled devices in autonomous vehicles.

Positive

- Safer because human error is removed, leading to fewer accidents
- Travel becomes safer as the vehicle can react faster to

Situations

- Driving becomes more efficient as the vehicle finds the best way of getting to the location

Negative

- It is very expensive to maintain
- hackers gaining access to the vehicle can control it's operation which could lead to security problem
- The driver must remain alert to override the system if needed

Other

- The device could stop working causing accidents

[6]



5 One of the benefits of a Graphical User Interface (GUI) is that it is user friendly.

(a) State **two** other benefits of a GUI.

1 Uses a KLIMP technology

2 Don't have to learn Commands

other - They are Intuitive

[2]

(b) State **two** other types of user interface.

1 Command Line Interface

2 Gesture-based user interface

[2]

Chapter 4: Networks and the effects of using them.

6 (a) Discuss the advantages and disadvantages of using web-conferencing rather than video-conferencing for meetings.

Advantages

- Reduced cost as less hardware is needed
- Fewer issues with lip sync / audio lag
- More flexibility as they do not need to turn on the camera
- Can be used on more devices

Disadvantages

- Requires a stable internet connection
- Fewer features than video conferencing

[6]





- (b) An organisation has decided to use video-conferencing for its meetings.

State the hardware and software required to set up the video-conference.

Hardware

- Monitors
- Microphones
- Speakers

Others

- Routers
- Webcam / Camera

Software

- Webcam and microphone software drivers

- Others
- Echo Cancellation Software
 - CODEC (Encoder - Decoder)

[4]





- 7 A teacher is creating a revision website for her students. The website contains information taken from a number of different sources including published books. These sources are protected by copyright.

— Chapter 9: Audiences

- (a) State what the teacher needs to do to ensure that she does not break copyright rules when she publishes the website.

- She must ask permission to use the material
- she should acknowledge the sources for the material

[2]

Chapter 9: Audiences

- (b) Explain the principles of software copyright.

- users must not sell / lend the software to other people
- users must not modify the software
- Must not use coding from the software in your software

[3]

Chapter 9: Audiences

- (c) Explain why copyright legislation is needed.

- Prevent theft of intellectual materials
- Protects the Copyright of the owner of the Software
- Ensure people are rewarded for their endeavours

[3]





- 8 Artificial Intelligence (AI) is having an impact on everyday life. Social media now uses AI for many tasks.

Chapter 1: Types and Components of Computer Systems

- (a) State what is meant by Artificial Intelligence (AI).

- It can simulate human intelligence
- It can learn from previous decisions
- Other
- Mimic human problem solving / decision making

[2]

- (b) Evaluate the impact of Artificial Intelligence (AI) in the use of social media.

- Allows for better content on the site as customised to the user
- It can recognise people's faces in photograph posted
- It can easily detect spam / inappropriate material
- It targets advertisements, allows advertisers to attract more relevant customers

[4]

- 9 An expert system can be used in medical diagnosis. An explanation system is a component of an expert system.

Chapter 6: ICT Applications

- (a) State **three** other components of an expert system.

- 1 User interface
- 2 Knowledge base
- 3 Rules base

[3]



Chapter 6: ICT Application

(b) Explain what is meant by an explanation system.

- Informs the user of the reasoning behind the expert systems

Conclusion

- Clarifies the structure of the solution to the problem.

[2]

Chapter 6: The effects of using IT

- 10 An automatic vacuum cleaner uses sensors to detect obstacles. If the vacuum cleaner is too close to the obstacle, it stops and automatically changes direction.

Describe the drawbacks of using this type of control system.

- It cannot clean the whole room due to sensing objects
- People become too reliant on the technology
- The sensors can become obstructed by dirt therefore giving false readings
- Does not know which parts it has cleaned or not

[4]

- 11 Parallel running can be used as a strategy to implement new systems.

Chapter 7: The Systems Life Cycle: Implementation

(a) Describe what is meant by parallel running.

- both systems running together until the new system works properly
- When the new system works the old system is removed

[2]

Chapter 7: The Systems Life Cycle - Implementation

(b) Describe the benefits and drawbacks of using parallel running.

Benefits

- Training is gradual
- If the new system fails, the old system is available as a backup
- New system can easily be tested with live data

Drawbacks

- Expensive as two sets of staff are needed to run both systems
- More time consuming to enter data into two systems
- There will be duplication of data entry which can cause differences in the output of the two systems

[5]

other

12 One of the risks when entering a password into a computer system is key logging.

Chapter 8: Safety and Security

(a) Explain what is meant by key logging.

- It can gain fraudulent access to passwords
- It records to Cybercriminal responsible for the software every keystroke on your keyboard and stores them in a small file

[2]

Chapter 8: Safety and Security

(b) Give **two** security improvements that could be made to prevent key logging.

- 1 Install anti-spyware software
- 2 update the computer system regularly

[2]



- 13 A shopkeeper sells fruit and has created a table containing the name of the fruit, its bar code number and an image of the bar code.

Part of the table is shown.

Type of fruit	Bar code number	Bar code
Apple – Fuji	977135120128	 9 77135 12012 8
Apple – Jona Gold	050023495154	 0 50023 49515 4
Apricot	050128440066	 0 50128 44006 6

Chapter 7: The Systems Life Cycle : Design phase
Fig. 13.1

- (a) State and describe **two** validation checks that could be used for the bar code number.

1 Check digit
An extra digit added to a number which has been calculated from the other digits

2 length check
Checks that there are only 12 digits

Other Presence Check
Checks that the number exists / not a null value

[4]



- (b) Describe the advantages and disadvantages of entering the data by scanning the bar code rather than typing in the number.

Advantages

- faster data entry
- fewer data entry errors are made

Disadvantages

- More reliant on the technology
- If the barcode is incorrect the scanner would not know
- Extra hardware is required increasing costs
- If the barcode is damaged then the data may not read properly

- (c) A bar code reader is an example of a direct data entry device.

State **three** other examples of direct data entry devices.

- 1 Radio Frequency Identification (RFID) reader
- 2 Optical Mark Recognition (OMR) reader
- 3 Optical Character Recognition (OCR) reader

Chapter 10: Communication

- 14 The features of emails include carbon copy (cc) and blind carbon copy (bcc).

- (a) State **three** other features of emails.

- 1 Forward
- 2 Attachments
- 3 Automatic reply to messages

[3]



(b) Describe what is meant by blind carbon copy (bcc).

- Allows the user to send a message privately to some of the recipients

- Any recipients on the Bcc line of an email are not visible to other recipients of the email

[2]

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