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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/11

Paper 1 Theory

October/November 2023

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 **16** pages. Any blank pages are indicated.

- 1 A newsagent has created a database with fields to store details of each newspaper and magazine he sells. Part of the database is shown.

Product_number	Name_of_publication	Selling_price	Frequency	Publisher
1001	Wireless Times	\$1.50	Daily	Trinity Press
1015	The Daily Press	\$1.50	Daily	H W Brown
1034	OME	\$2.00	Monthly	Trinity Press

- (a) Tick (✓) the field name that would be the most appropriate primary key for the database.

A Product_number

☒

B Name_of_publication

☐

C Selling_price

☐

D Frequency

☐

E Publisher

☐

Primary Key is use to uniquely identify
a record.

[1]

- (b) The newsagent has added a field called Bar_code to store the bar code number of the product.

Explain why a presence check is not a suitable validation check for the Bar_code field.

Not every publication has a bar code

[1]

- (c) The newsagent could use a relational database rather than a flat file database.

Microsoft Access

Describe the advantages of using a relational database rather than a flat file database.

- Reports can be created using tables
- Queries can be created using tables
- less memory are used in the computer
- you only have to input the data once, which saves time.

[4]

(d) From the data shown in the part of the database, identify the most appropriate data type for the:

(i) Selling_price

Numeric : Currency

[1]

(ii) Name_of_publication

Text

[1]

2 State the most appropriate word or phrase to complete each sentence.

(a) The type of data output from a sensor is

ADC

Analogue

[1]

(b) The type of data read by a microprocessor is

Digital

[1]

(c) The item of hardware that converts data from a sensor so a microprocessor can read it is

Analogue to digital Converter (ADC)

[1]

(d) The type of sensor that is used in a refrigerator is

Temperature

[1]

Chapter 2
Input-Sensor
2.10

- 3 A group of students are carrying out a study of the quality of river water for a project. They can either use a tablet computer or a smartphone to monitor and record their findings.

- (a) Discuss the advantages and disadvantages of using a tablet computer rather than a smartphone for this project.

Advantage

- It's easier to connect devices to a tablet
- Larger screen to record your findings
- Larger screen to see the findings
- Suitable software for tablets

Disadvantage

- Smartphones are more portable and be easily carried around in a pocket
- Students are more likely to have smartphones with them

[6]

- (b) Identify **two** devices that could be used by the students to enter data.

1 Camera

2 Touch Screen

others

3- Microphone

4. Virtual keyboard

[2]

Chapter 2

4 A headteacher is considering setting up a card system for students to buy food in the school canteen.

The headteacher is trying to decide whether to install a system that uses magnetic stripe card readers or one that uses chip and PIN card readers.

Compare the use of magnetic stripe card readers with the use of chip and PIN card readers. Your answer must include similarities and differences.

Similarities

- Both readers are in direct contact with the card
- Both are input devices

Differences

- Chip and Pin is more secure as a Pin is needed for transaction
- Chip and Pin reader prompts the user to enter a Pin
- In the Chip and Pin reader, the user needs to know the Pin
- In the Magnetic Stripe Card reader the card can be used by anyone as no Pin is needed

[6]

Others - In magnetic stripe card reader, the transactions are faster

5 A bridge and a router are examples of networking devices.

Chapter 4

(a) Explain the differences between a bridge and a router.

- A bridge is a device that connects one LAN (Local Area Network) to another LAN using the same protocol
- A router allows data packet to be sent from one network to another network (Internet)

[2]

Others

- A bridge connects multiple LAN to function as a single LAN
- A router connects a LAN to a WAN (Internet)

- (b) IP addresses are used in computer networks.

Explain what is meant by an IP address.

- Internet Protocol
- Identifier the location of a device on a network
- unique Identifier
- All devices connected to the internet must have an IP address

Others

- IP addresses assigned to devices on the network must be different

[4]

- (c) Explain the purpose of a routing table.

- Shows the IP addresses
- Direct the data packet to the correct device

Others

- Shows the MAC address

[2]

- 6 A cricket club secretary saves a list of players as a PDF file.

- (a) Describe **two** disadvantages of saving the list of players as a PDF file.

- More difficult to edit
- Need a PDF software (editor) to edit information

Others

- Need a PDF software (viewer) to view the information

[2]

Chapter 11

The cricket club has a junior team for 6–8-year-old players. The secretary has produced an ePublication to attract new members to the junior team.

Chapter 6
ICT Application
- Communication

(b) State **two** features of an ePublication that could **not** appear on a paper poster.

1 Video

2 Audio

3- Text to Speech 4. Animation 5. Interactive (clickable hyperlinks) [2]

Chapter 9
Audiences

(c) Describe the features that could be used to make the ePublication attractive to a younger audience.

- Bright Colours

- Videos

- More pictures than text

- Animations

- Sounds

- Large text fonts, so it's easier to read

others

- Game for content can be used

[6]

7 An employee in a company has used QWERTY123 as his login password for some time.

(a) Give **three** reasons why this is **not** advisable.

- Chapter 8
- 1 It is easy to guess
.....
 - 2 Easy to shoulder surf
.....
 - 3 It is not a strong password
.....

[3]

(b) Complete the sentences using the most appropriate data protection method from the list. Your answers must be different in each case.

Anti-spyware

Biometrics

A digital certificate

A dongle

Encryption

A firewall

Two-factor authentication

User ID

(i) A method which scrambles the data so that it cannot be understood is

..... Encryption [1]

(ii) A fingerprint is an example of

..... Biometrics [1]

(iii) A method of guaranteeing a website is authentic is

..... A digital certificate [1]

(iv) A hardware device that filters the information coming through the Internet connection into a LAN is

..... A firewall [1]

- (c) An employee in the company uses his company password for other accounts.

Explain why this is **not** a good idea.

- If someone finds the password for his company account then other accounts are compromised.

[1]

- 8 Microprocessor-controlled devices are used in the home.

Describe, with examples, how using these devices can affect the health and fitness of their users.

Chapter 5
e.g. when the device does all the work

- it makes the user lazy

e.g. the user does not need to be present when the device is working

- gives the user more/less exercise

e.g. using computers/machine devices for too long

- can cause a health issue (eye strain)

[6]

- 9 Rowena's laptop computer contains a small capacity Solid State Drive (SSD) of 32Gb and a large capacity Hard Disk Drive (HDD) of 1024Gb.

Chapter 3

- (a) State, giving a reason for your choice, a use for the SSD and a use for the HDD in the laptop computer. Your answers must be different in each case.

(i) SSD

• To store games

Reason

- The game runs faster

[2]

(ii) HDD

To store files (eg movies)

Reason

- Can store larger files

[2]

- (b) The laptop computer also contains internal memory.

Give **two** examples of internal memory.

Chapter 1

- 1 Random Access Memory (RAM)
- 2 Read only Memory (ROM)

[2]

- 10 A teacher has set up a database for a class library. The data about the books in the class library will be entered by the teacher.

(a) The data can be verified by double data entry or visual verification.

Compare double data entry with visual verification. Your answer must include similarities and differences.

Similarities

- Both are used to check the data has entered correctly
- Both are used to check the data against the original data
- Both ensures the data have been transferred correctly

Difference

- In visual verification, data is compared with the original document
- In double entry, data is compared with the previous data

[4]

- (b) When data is entered into a date field it is validated. An example of the data that could be entered is 01/04/2023

DD MM YYYY

State two validation checks that could be used on this data.

1 Format Check

2 Type / Character Check

[2]

- 11 Many Automatic Teller Machines (ATM) allow customers to print out mini statements of their bank accounts.

Describe the inputs and processing involved in printing out a mini statement.

Chapter 6
ICT applications

Input

- Insert your ATM Card
- System reads the details on the Card
- Enter your preferred language
- Enter your PIN
- Select Print (mini statement) option
- Select Account (Savings, Current)
- Select Confirm

Processing

- Check if the Card is valid
- Check if the Pin is correct
- Check if the correct account was selected

[6]

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PLEASE TURN OVER.

12 A student has produced some work for a school project. A page of the work is shown.

Chapter 17: Document Production

A Study of the English Wallaby

The Problem

Wild wallabies (*Macropus rufogriseus*) continue to be reported across the whole of England. Despite the harsh winter conditions, these animals have flourished in recent years. Many people have contacted the police with reported sightings in gardens, quiet country lanes and even alongside busy motorways.

The original colony, thought to be the source of the English wallaby, was first reported in Derbyshire in England. These animals were believed to have been released in the 1940s from a private zoo. It is more likely that other private zoos and escapees from wallaby farms are to blame.

The Zoological Society of London keeps up-to-date records of private collections of wallabies in England, and to date there are over 100 such collections.

Many people ask why it matters if these animals have escaped, as they are not dangerous. The problem is that the introduction of invasive, non-native species can have substantial impacts on native species, and wallabies are no exception.

Fig. 12.1

- (a) The student has placed a column break in his document.

Explain the purpose of setting a column break.

- Could remove widows orphans
- Places a hard break in the location selected

[2]

- (b) After running a spell check and proofreading his document the student notices that one word is still showing an error.

Explain why this word has caused an error and how the student could ensure that the error does not reappear when this word is used in future.

- The word does not appear in the dictionary
- The word is written in Latin and the dictionary is in English
- Add the word to the dictionary
- Set the dictionary to ignore the word

[2]

Again
Chapter 15
Proofing
others

others

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