**Z**ig **Z**ag Education

2017 specification
first exams in 2018

# Practice Exams: Unit 1

## *for CCEA GCSE Digital Technology*

**zigzageducation.co.uk**    POD 8734

Publish your own work... Write to a brief...
Register at **publishmenow.co.uk**

# Contents

# Teacher's Introduction

This resource has been produced to help your students prepare for the examination of GCSE CCEA Digital Technology Unit 1 (for examination 2018 onwards). It includes five original practice question papers with supporting mark schemes.

The question papers and mark schemes are designed to be in a similar style to the CCEA specimen assessment materials, to provide realistic exam practice. The papers can be used as a 'mock' examination; alternatively, individual questions can be set for recap/revision purposes.

The mark schemes include clear, bullet point answers and marking guidance.

*Please note that the mark schemes are indicative and for guidance only; for some questions there may be alternative answers than those given and in such cases, appropriate credit should be given.*

**Free Updates!**

Register your email address to receive any future free updates* made to this resource or other ICT resources your school has purchased, and details of any promotions for your subject.

*\* resulting from minor specification changes, suggestions from teachers and peer reviews, or occasional errors reported by customers*

Go to **zzed.uk/freeupdates**

| Name | |
|------|--|

# ZigZag Education supporting:

# CCEA GCSE Digital Technology

## Unit 1: Digital Technology (Compulsory Content)

Practice Paper 1

**Time:** 1 hour

**Instructions:**

- Write your answers in the spaces provided in this question paper.
- Answer **all** questions in the spaces provided.

**Information:**

- The maximum mark for this paper is 90.
- The marks for each question are shown in brackets.
- Quality of written communication is assessed in questions 7 & 8(a)

In Question 1, insert the appropriate letter in the space provided.

1.  a)   Explain what is meant by a pixel.

    A    It is the largest element in a display which can be divided into vario
    B    It is a single dot that cannot be used to make up a graphic.
    C    It is the smallest element of a display which can be joined to form ∂
    D    A storage unit.


    b)   What does the acronym ROM stand for?

    A    Random only memory
    B    Read-only memory
    C    Random ordinary memory
    D    Read-only micro


    c)   W__ __tement describes a LAN?

    A    A network which uses public telephone links.
    B    A network in which the computers are all connected from a wide g
    C    A network covering a highly populated area.
    D    A network in which the computer systems are all connected relativ


    d)   Select the list which contains only image file formats.

    A    JPEG, GIF, TXT, BMP
    B    PICT, GIF, AVI, BMP
    C    WMA, GIF, TXT, BMP
    D    PICT, GIF, JPEG, BMP


    e)   What is the purpose of a key field in a database?

    A    Uniquely identifies a field.
    B    Uniquely identifies a table.
    C    Uniquely identifies a record.
    D    Uniquely identifies a key field.


    f)   Mary needs to add a new customer to the database she is creating. Wh
         to use to do this?

    A    Insert a new field.
    B    Insert a new column
    C    Insert a new __
    D    A__er__ __ __ __ng row.


    g)   What does the acronym RSI stand for?

    A    Repetitive strain injury
    B    Repeating stress injury
    C    Repeating strain injury
    D    Repetitive stress injury

h) Select the statement which is true about FTP.

A    It is a protocol for transferring files across the Internet.
B    It stands for File Transmission Protocol.
C    Using FTP always requires a username and password.
D    It is a computer program used for transferring files.

i) Select the statement which best explains data portability.

A    The ability for data to be used in different computer software.
B    The ability for hardware to use different computer software.
C    The ability for data to be used on different computer hardware.
D    The ability for hardware to be shared.

j) What does the acronym NIC stand for?

A    Network arrival card
B    Neural interface card
C    Network interface card
D    Neural interval card

2. Using the table below, explain what the following spreadsheet functions will

| Function | Explanation |
|---|---|
| SUM(A8:A10) | |
| MIN(A8:A10) | |
| MAX(A8:A10) | |
| VLOOKUP('Fred',A2:B8,2) | |
| IF(A3<B6,true,false) | |

3. Josh wants to book a holiday flight. He logs on to the airline website in order state and justify which type of website processing occurs when Josh **actually**

| Type of processing (Batch/Real-time) | Justification |
|---|---|
| | |

4. The central processing unit (CPU) in a computer system contains many comp

    a) What is a register?

       .......................................................................................................................

    b) One such register is the IAR. What does the acronym IAR stand for?

       .......................................................................................................................

5. a) Using the given characteristics for the following input and output device

| Characteristic(s) | Name of device | One advantage |
|---|---|---|
| Touch the screen with a stylus or finger to inp.... a | | |
| Capable of high resolution output using toner | | |
| Can be used to produce plastic models. Takes data from a computer-generated model and translates that into a real, solid | | |
| Records audio | | |

    b) In..... owing terms into the paragraph below. (Only use each ter

| digital to analogue converter | digital | analogue |
|---|---|---|

    When sound is recorded using a microphone it is _____

    _____ form before it can be stored or processed by a

    _____ is needed. When the converted data

    needs to be converted back using a _____.

6.  a)  What is the difference between data and information?

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

b)  Databases have data stored as different types. For each of the following, should be stored as.

| Date/time | Text/string | Character | Boolean |
|-----------|-------------|-----------|---------|

| Example |
|---------|
| A field that stores whether a customer has paid or not paid their bill. |
| A field in which an adult is stored as an A and a child is stored as a C. |
| A field that stores a customer's surname. |
| A field that stores the customer's age in years. |
| A field that stores the price of the various goods in a store. |
| A field that stores a customer's appointment time. |

7.  WPC engineering is expanding the computing side of its business administration recommended to use the cloud as storage. (QWC).

Discuss this recommendation.

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

....................................................................................................................

8. Mobile phones are now quite popular in **education and training**.

   a) Discuss the disadvantages of using mobile phones in this way. (QWC)

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   b) State **one** way in which allowing students to use mobile phones for lea
      pattern of the trainer.

   .......................................................................................................................

   .......................................................................................................................

9. a) David is considering networking his eight work computers to a file serv
      have Internet access. He has been told he needs both a switch and a ro

      i) Why does David need a router?

      .......................................................................................................................

      .......................................................................................................................

      ii) Why does David need a switch?

      .......................................................................................................................

      .......................................................................................................................

   b) W      th       erence between the World Wide Web and the Internet

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

   .......................................................................................................................

c) Transmitting information on the Internet can create security issues. On[...] encrypt the data.

    i) Explain how encryption works.

.................................................................................................................

.................................................................................................................

.................................................................................................................

.................................................................................................................

.................................................................................................................

    ii) Encryption can be vul[...]le [...] a brute force attack. What is a bru[...]

.................................................................................................................

.................................................................................................................

d) There are some basic precautions everyone using the Internet should t[...] variety of cybercrimes. Give **three** examples of cybercrime.

1. ..............................................................................................................

2. ..............................................................................................................

3. ..............................................................................................................

e) Give **three** examples of precautions you can take to protect yourself ag[...]

1. ..............................................................................................................

2. ..............................................................................................................

3. ..............................................................................................................

10. Suggest **two** advantages and **two** disadvantages of using **gaming application**[...]

Advantages

1. .............................................................................................................

.................................................................................................................

2. .............................................................................................................

.................................................................................................................

Disadv[...]

1. .............................................................................................................

.................................................................................................................

2. .............................................................................................................

.................................................................................................................

11. a) The Consumer Contracts Regulations came into force in 2013. State ho[w]
following scenarios.

    i) Mary bought some shoes over the Internet but three weeks later s[...]
shop at a much cheaper price. As the shoes had not yet been deliv[...]
contract. She was told she could not.

        ...................................................................................................

        ...................................................................................................

    ii) George was using the Internet to look for some football boots. He [...]
shopping basket but then changed his m[...] n did not proceed t[o]
few days later that the money f[...] t [...] [...] [foot]ball boots had been take[n]

        ...................................................................................................

        ...................................................................................................

    iii) [...]il decided to purchase and download a digital music file. After li[...]
decided to cancel his download and requested his money back. He [...]

        ...................................................................................................

        ...................................................................................................

    iv) Josie bought a sewing machine on the Internet. When she looked [...]
had also been charged for the warranty of the sewing machine eve[...]
box. She complained to the company.

        ...................................................................................................

        ...................................................................................................

b) According to the Data Protection Act, which of the following statement[s]
the data subject?

| Statement |
| --- |
| A data subject has the right to be supplied with the personal data hel[d] about him or her if they go through the data controller |
| A data subject can force a data controller to correct any incorrect dat[a] held about them. |
| A data subject cannot prevent a c[...] p[...] [...] using their informatio[n] even though it might ca[...] [...] [di]stress. |

12. Insert a term from the list that matches the most appropriate definition in t[ ] should only be used once.)

| TEMPLATE | MALWARE | SPYWARE | HA[ ] |
|----------|---------|---------|-------|

| Definition | |
|------------|--|
| Malicious software that can be downloaded onto a computer system, such as a virus and a worm. | |
| Malicious software that records a computer user's actions without them knowing. | |
| A layout which may have some elements au[ ] inserted each time it is used. | |
| Storage which resides b[ ]een [ ]main store and the central process[ ] [ ] [ ]duce processing time. | |
| A per[ ] [ ]es to gain unauthorised access to a comp[ ] system. | |

**END OF PAPER**

**TOTAL MARKS: 90**

# Preview of Questions Ends Here

## Practice Paper 2

1.  a) C - Contains the address of the next instruction to be executed.
    b) A - RAM is volatile and can be edited.
    c) A - Each computer has a wireless interface that connects to a wireless a[c]
    d) C - MP3, WAV, WMA, AAC
    e) B - A video file extension associated with Windows Media Player.
    f) C - Structured Query Language
    g) D - Use a screen filter.
    h) A - Makes sure data within the organisation is collected and used fairly.

2.  a) 10 bytes

    b) Any 1 * 1 mark
       The reduction in available system memo[ry] [de]p[en]ds on the configuration
       • The devices that are install[ed] [on] h[e] [co]mputer, and the memory tha[t]
       • The ability of the m[o]th[erbo]ar[d] [t]o [h]andle memory
       • The System P[IC] [s]er[ing] [an]d settings
       • The ve[rsi]o[n] [of] [Wi]ndows 7 that is installed (for example, Windows 7
         [ ] of [install]ed memory)
       • [othe]r system setting

    c) Any 3 reasonable suggestions * 1 mark each
       • How fast it can transfer data from one place to another
       • Machine portability
       • The price per unit of the storage
       • How robust the storage is, e.g. whether it will deteriorate over time a[ ]

    d) i) Optical storage
       ii) Magnetic storage
       iii) Solid-state storage

    e)

| Example | Blu-ray disk | |
| --- | --- | --- |
| A one-hour high-definition video | ✓ | |
| Saving and downloading files on a computer system | | |
| A student's coursework | | |

3.  a) i) Vector-based

       ii) Any 2 * 1 mark each
          • The lines would be stored rather than the whole shape as pixe[ls]
          • The shape would be created from instructions
          • Less storage is needed
          • Scaling the picture does not alter the re[so]l[ut]ion

    b) Lossy compression may involve a [red]uc[tion] [or] [in] [r]esolution (1) and possib[ly]
       Lossless compression can b[e] [r]e[duc]e[d] [b]ack to the original (1) with no eff[ect]

4.  a) Full backup – [e]v[eryth]in[g] [i]s backed up (1)
       In[creme]nt[al backu]p – only backs up data that has changed since the la[st]

    b) An[y] [1] mark each
       • Can set a program to open/run, etc. at any time you want
       • Can add multiple tasks to be done
       • Can set time in as much detail as you want
       • Can set up alert messages

    c) If the file has been split up when saved, defragmentation moves these f[iles]
       and thus speeds up the loading process (1)

5. a) Extremely large data sets (or an appropriate example)

b) i) Refers to the amount of data
   ii) Types of data – pictures, audio, etc.
   iii) How fast the data is coming in and can be handled

c) i) Big Data Analytics Application software
   ii) Any 2 * 2 marks (max.) each, e.g.
      - Cyberbulling (1) – use of computers to harass/threaten anothe
      - Identify fraud (1) – obtaining and using someone else's identif
      - Phishing (1) – attempting to obtain a person's sensitive inform
        person or organisation (1)
      - Location tracking (1) – a person's location can be shared – bo
        unknowingly – when posting online (1)

6.

| Example | Data Type | | | | |
| --- | --- | --- | --- | --- | --- |
| | Boolean | Date/time | Numeric | Text | Form |
| Yes/No | ✓ | | | | |
| 2000.4 | | | ✓ | | |
| =(3:6) | | | | | ✓ |
| TRUE/FALSE | ✓ | | | | |
| 23/11/2019 | | ✓ | | | |
| Fred Jones | | | | ✓ | |
| -23 | | | ✓ | | |
| BT99QE | | | | ✓ | |
| Male/Female | ✓ | | | | |

7. a) Using smart technology (1) to send, receive and process information (1)

b) Any 1 * 1 mark each
   - https means the data is encrypted when transmitted so is more priv
   - https provides encryption through SSL or TSL
   - It can check that the website is genuine

8. a) Any 2 * 1 mark each
   - The good-quality graphics can help to create working environment
   - To assist with training / avoid dangerous situations / keep the cost
   - As a reward for employees
   - As a stress relief
   - Helps in developing mind concentration
   - Can encourage staff interpersonal communication

b) Any 2 * 1 mark each
   - Game playing is easily accessible and can be dictive
   - Can interfere with actual working hours
   - Could be unhealthy if an outside break is sacrificed for an indoor ga
   - Drains battery use, and could be needed for other work-
   - The app could take up available storage space

9. **Level 1**
The candidate has briefly explained one advantage or one disadvantage OR
disadvantages. The candidate shows good clarity in their discussion and the
punctuation and grammar.

**Level 2 (3–4)**
The candidate has described at least one advantage and at least one disadv
good clarity in their discussion and there is good use of spelling, punctuation

**Level 3 (5–6)**
The candidate has fully explained at least two advantages and at least two d
shows very good clarity in their discussion and there is very good use of spe

**Advantages of mobile phone apps**
- Readily available and easy to use
- Provide plenty of ways to interact, e.g. MMS, SMS, audio
- Communication can be global
- Communication can be 24/7
- Can set up own closed groups

**Disadvantages of mobile phone apps**
- Mobile phone apps are not necessarily cross-platform
- Some of these apps are expensive
- There are a lot of apps out there, perhaps too many, so it is distracting
- Some apps require personal information to operate and this can be a se

10. a) An Internet-based service (1) that stores, manag_ _ _ _d processes data

   b) i) Infrastructure as a Service
      ii) Software as a Service
      iii) Platform as a S_ _ _ _e

   c) i) _ _bs _ _ _ _ng, servers, etc.
      ii) _ _ication software
      iii) _ _erating systems programming environments, virtual web servers

   d) Any 3 * 1 mark each
      - Flexibility of growing bandwidth demand
      - A more cost-effective method of backup and recovery
      - Cloud suppliers tend to provide updates as a matter of form
      - Cuts out the high cost of a business having to purchase hardware
      - Staff collaboration and sharing of files can be more efficient
      - Staff can work from anywhere
      - Better security in that the data is not actually stored on a device wh

11. a)

| Statement |
| --- |
| You cannot give a copy of a music DVD to a friend. |
| You can rent software without the permission of the copyright holder. |
| You can make a copy of a DVD game, sell it and give the money to cha |
| The law covers music, books, videos, games and software. |
| If you buy a copy of a piece of software, you can install it on a network. |

   b) **Level 1 (1–2)**
   The candidate has briefly explained one advantage OR one disadvanta
   disadvantages. The candidate shows good clarity i_ _ _eir discussion an
   punctuation and grammar.

   **Level 2 (3–4)**
   The candidate has d_ _ _ _ _e _ _ _ast one advantage and at least one di
   shows good c_ _ _ _ _ _ _ _discussion and there is good use of spelling,

   **L_ _ _ _5–6)**
   Th_ _ _ _didate has fully explained at least two advantages and at least t
   shows very good clarity in their discussion and there is very good use of
   grammar.

   **Advantages of e-commerce**
   - Can globally sell and buy
   - Smaller companies can access wider markets and compete with la
   - Fewer costs – less staffing required in stores and no cost for premi
   - 24/7 business opportunities

**Disadvantages of e-commerce**
- Lack of personal touch
- Have to cope with a wide variety of currencies and languages
- Extra cost for global delivery
- Impersonal
- More open to security fraud
- Goods can be delayed

12.

| Definition |
| --- |
| A program designed to copy itself within and between computers in order to [ ] system unreliable. |
| Having to update work skills because of the intro[ ] of computers. |
| Attempting to gain unauthorised acc[ ] a [ ]puter system. |
| An operating mode that c[ ] ea [ ]kly enough to influence behaviour. |
| An application [ ] [ ]vent external users gaining access to a network. |

## Preview of Answers Ends Here