



Unit 2 • Information and Communication Technology: ICT tools, the internet and email

Give the marks for the points in the marking scheme; an answer in other words that says the same is right.

1 Key words

1. ICT
2. internet
3. global village
4. browser
5. website
6. URL
7. search engine
8. e-book

K • 4

Each carries 0.5 mark.

2 Label the diagram

1. protocol how to talk to the server (s = secure)
2. kind of organization: government
3. country: Nepal
4. path which page of the website

U • 2

Each carries 0.5 mark.

3 Multiple choice

- i. c. a mobile phone

K • 1

On a mobile phone you can listen and reply. A newspaper, a radio and a television bring you information, but you can't answer through them. (A radio phone-in program is two-way only because the listener uses a **telephone** to call the station.)

- ii. c. carbon copy

K • 1

Carbon copy: the name comes from the carbon paper once used to make copies of letters. (Bcc is blind carbon copy.)

- iii. c. needs an internet connection

U • 1

Both the sender and the receiver need the internet. The other three are advantages.

- iv. c. a government website

U • 1

.gov is for government websites (and **.np** for Nepal). An educational one in Nepal ends in **.edu.np**.

- v. b. a search engine

A • 1

A **search engine** finds web pages from a few key words ("snow leopard Nepal"). She needs no address to start; the search engine finds the websites for her.

4 Very short answers

- a. MARKING SCHEME

K • 1

✓ Uniform Resource Locator.

- b. MARKING SCHEME

K • 1

✓ Any two browsers (Chrome, Firefox, Safari, Edge) named.

- c. MARKING SCHEME

U • 1

✓ Only the sender.



- d. MARKING SCHEME K · 1
✓ www.moecdc.gov.np (moecdc.gov.np).

5 Short answers

- a. MARKING SCHEME U · 2
✓ In one-way communication we can only receive; in two-way we can also reply and discuss.
✓ An example of each: radio, television or newspaper; telephone, mobile or computer.
- b. MARKING SCHEME U · 2
✓ Any one difference, e.g. a letter is written on paper and carried by post; an email is sent electronically through the internet.
✓ Any second difference, e.g. a letter takes days or weeks, an email arrives in seconds (or a letter needs a stamp, an email is free apart from the internet; an email can go to many people at once).
- c. MARKING SCHEME K · 2
✓ Any one advantage, e.g. takes very little space.
✓ Any second advantage, e.g. cheap or free and downloaded at once (doesn't tear, saves paper, can be searched).
- d. MARKING SCHEME A · 2
✓ Typing the address goes straight to the real website.
✓ A search can also list fake look-alike sites and advertisements.

6 Long answer

ANSWER

U · 4

The **internet** is a worldwide network that joins billions of computers and other devices, by wire and without wires, so that information can be shared and exchanged between them.

Tasks made possible by the internet:

1. searching for information on any subject with a search engine;
2. sending and receiving email, and messages with photos and videos;
3. video calls with people anywhere in the world;
4. reading news and e-books, and downloading textbooks;
5. online classes and learning videos;
6. online shopping, banking and paying bills;
7. filling in forms and applications online (admissions, jobs, passports);
8. social networking, sharing photos and keeping in touch with friends.

MARKING SCHEME

- ✓ The internet: a worldwide network joining billions of computers and other devices (by wire or without), so that information can be shared.
- ✓ Any one task, e.g. searching for information with a search engine.
- ✓ Any second task, e.g. sending email, messages and video calls.
- ✓ Any third task, e.g. online classes and e-books, online banking and shopping, or filling in forms online.

7 Numerical problem

ANSWER

A · 2

Free space = 32 GB = 32,000 MB. Number of books = $32,000 \text{ MB} \div 10 \text{ MB} = 3,200$ books.

MARKING SCHEME

- ✓ Free space divided by the size of one book: $32,000 \text{ MB} \div 10 \text{ MB}$.
- ✓ 3,200 books.



8 Think

ANSWER

HA · 2

No. The radio itself still only brings the program to us; we can't reply through it. The listener answers back by using a telephone, which is the two-way means of communication here.

MARKING SCHEME

- ✓ No: we can't reply through the radio itself; it only brings the program to us.
- ✓ The listener talks back through a telephone, which is two-way.

9 Activity: ICT tools around us (Activity 2.1)

(not marked)

WHAT STUDENTS SHOULD FIND

Radio: news, songs and programs (one-way). Television: news, programs and lessons (one-way). Mobile phone: calls, messages, internet (two-way). Computer: writing, calculating, searching the internet, email (two-way). Others a student may add: newspaper (one-way), telephone (two-way), printer, camera, projector. Radio and television don't need the internet; email, web pages and video calls on a phone or computer do.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	11	13	5	2	31





Unit 2 • Information and Communication Technology: spreadsheets, photos, viruses and software

ANSWER KEY • FOR TEACHERS

Full marks 33

Give the marks for the points in the marking scheme; an answer in other words that says the same is right.

1 Key words

1. spreadsheet
2. cell
3. formula
4. pixels
5. cropping
6. virus
7. software
8. hardware

K • 4

Each carries 0.5 mark.

2 Label the diagram

1. Application software MS Word, Excel, a browser, Paint, games
2. System software: the operating system Windows, Android, Linux, macOS
3. Hardware processor, memory, screen, keyboard, disk
4. Utility software

K • 2

Each carries 0.5 mark.

3 Multiple choice

- i. a. system software

K • 1

Windows is an **operating system**, the main kind of system software: it runs the hardware and lets other programs run.

- ii. c. select and move

K • 1

To drag is to press the mouse button on something, hold it and **move** the mouse: dragging over cells selects them all; dragging the fill handle copies a formula down.

- iii. c. 150

A • 1

The * means multiply: $6 \times 25 = 150$. The cell keeps the formula but shows its answer. (31 would be =B4+C4.)

- iv. c. an antivirus program

U • 1

An antivirus keeps the computer safe and working well: that is the job of utility software. Android and Linux are operating systems (system software); PowerPoint is application software.

- v. b. resize it to fewer pixels and save it as a JPEG

A • 1

File size goes down with the number of pixels. Resizing to fewer pixels (say 600 pixels wide), keeping the aspect ratio, makes a much smaller file. Cropping also removes pixels, but cuts off part of the photo; brightness doesn't change the size, and the form asks for a JPEG.

4 Very short answers

- a. MARKING SCHEME

A • 1

✓ C2.



- b. MARKING SCHEME A • 1
✓ =SUM(B2:B7) (or =B2+B3+B4+B5+B6+B7).
- c. MARKING SCHEME K • 1
✓ Digital Camera Images.
- d. MARKING SCHEME K • 1
✓ Parents or teacher, or the Cyber Bureau of Nepal Police.

5 Short answers

- a. MARKING SCHEME U • 2
✓ Any one difference, e.g. system software runs and controls the computer and its hardware; application software does the jobs the user wants.
✓ Any second difference, e.g. the computer can't work without system software, while application software is installed as the user needs (or an example of each: Windows; MS Word).
- b. MARKING SCHEME K • 2
✓ Any one sign, e.g. the computer becomes very slow.
✓ Any second sign, e.g. files won't open, strange folders appear, or a message keeps popping up.
- c. MARKING SCHEME U • 2
✓ The original photo stays unchanged.
✓ Pixels removed by shrinking or cropping can't be brought back (making it bigger again doesn't add detail).
- d. MARKING SCHEME U • 2
✓ Any one reason, e.g. to keep our personal details, passwords and photos safe from people who could misuse them.
✓ Any second reason, e.g. to protect ourselves from cheating, threats and strangers (or to respect others' privacy; breaking the rules can be a crime).

6 Long answer

ANSWER

U • 4

A **computer virus** is a harmful computer program that gets into a computer, usually without the user knowing, spreads to other computers, and damages files and programs or stops the computer working properly.

Ways to prevent it:

1. Install a good antivirus program and keep it updated.
2. Scan pen drives, memory cards and other portable media before opening them.
3. Keep the firewall switched on.
4. Don't open emails or attachments from unknown senders, or spam.
5. Don't visit unknown websites or download pirated software; get software from its maker or the official app store.
6. Use strong passwords.

MARKING SCHEME

- ✓ A computer virus: a harmful program that gets into a computer without the user knowing and damages files and programs.
- ✓ Any one way to prevent it, e.g. install an antivirus program and keep it updated.
- ✓ Any second way, e.g. scan pen drives and memory cards before opening them (or keep the firewall on).
- ✓ Any third way, e.g. don't open emails or attachments from unknown senders, or download software from unknown websites.



7 Numerical problem

ANSWER

A · 4

i. $=\text{SUM}(C2:G2)$

ii. $=H2/500*100$

iii. Total = $55 + 45 + 70 + 56 + 72 = 298$. Percentage = $298 \div 500 \times 100 = 59.6 \%$.

MARKING SCHEME

✓ i. $=\text{SUM}(C2:G2)$ (or $=C2+D2+E2+F2+G2$).

✓ ii. $=H2/500*100$.

✓ iii. Total 298.

✓ Percentage 59.6 %.

8 Think

ANSWER

HA · 2

Sita should not send her address or the photo, should stop chatting, and should tell her parents or teacher at once (rule 8). She can't know who "Anu" really is: the photo and the age may be fake, and a real friend's gift doesn't need a school uniform photo, which shows where Sita can be found every day. If the person keeps messaging or threatens her, an adult can help her block and report the account, and report it to the Cyber Bureau of Nepal Police (rule 7).

MARKING SCHEME

✓ She should not send her address or the photo, and should tell her parents or teacher at once.

✓ "Anu" may not be who she says; a photo of the uniform shows where Sita can be found every day.

9 Activity: Your marks in a spreadsheet (Activity 2.4)

(not marked)

WHAT STUDENTS SHOULD FIND

With seven subjects in B2 to B8, the total is $=\text{SUM}(B2:B8)$ (say in B9) and the percentage $=B9/700*100$ (the full marks of all the subjects in place of 700). When one mark is changed, the total and the percentage change by themselves.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	12	11	8	2	33

