Grade 7 Computing

Unit 8 · Keeping Data Safe

ANSWER KEY · FOR TEACHERS

Full marks 31

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. confidentiality
2. integrity
3. availability
4. malware
5. ransomware
6. phishing
7. data breach
8. backup

K · 4

Each carries 0.5 mark.

2 Kinds of malware

1. virus → **e.** hides inside other files and copies itself into more of them when they are opened
2. worm → **a.** spreads by itself from computer to computer over a network
3. trojan → **f.** pretends to be something useful, but does harm once installed
4. spyware → **b.** secretly reads your messages and records what you type
5. ransomware → **d.** scrambles your files and demands money to unscramble them
6. adware → **g.** floods the phone with ads and uses up data

K · 3

Each carries 0.5 mark.

3 Multiple choice

i. **b.** an app, because the name ends in .apk: installing it could install malware — U · 1

What a file really is depends on the last part of its name. This one ends in .apk, an Android app, with ".jpg" added in the middle to fool you. The friend's account may have been taken over, or the friend may have been fooled too. Don't open it; ask the friend another way.

ii. **c.** Updates fix mistakes (holes) in the software that malware could use to get in. — U · 1

Every big program has mistakes, and some of them let malware in. When the makers find one, they fix it in an update. A device without updates keeps the hole open, as WannaCry showed.

iii. **d.** a second password — U · 1

A second password is another "something you know", which can be stolen in the same way as the first. Two-step login needs a different kind of proof: something you have, or something you are.

iv. **d.** a security key or a passkey, which checks the website's real address itself — U · 1

A fake page can ask you to type a password or any code, and pass them on to the thief. A security key or a passkey checks which website it is talking to, and gives nothing to a website that isn't the real one.

v. **d.** photos on the phone, the laptop, and an online backup — A · 1

Only the online backup is away from the phone, away from the house and out of the laptop's reach. The memory card goes with a stolen phone; the laptop and the plugged-in pen drive burn in the fire and are scrambled by the ransomware.

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4 Who owns the link?

ANSWER A · 4

i. Owner **lalupatebank** (.com.np): the real bank. /loans is a page on its site.
ii. Owner **lalupatebank** (.com.np): the real bank. "online." is a part the bank itself added in front of its name.
iii. Owner **lalupatebank-online** (.com): not the bank. The name contains the bank's name, but it is a different name, which anyone could buy.
iv. Owner **bank-verify** (.org): not the bank. The ending is .org and the name before it is bank-verify; "lalupatebank.com.np" at the front was put there to fool readers.

MARKING SCHEME

✓ i. lalupatebank (.com.np): the real bank; /loans is a page on its site.
✓ ii. lalupatebank (.com.np): the real bank; "online." is a part the bank added in front.
✓ iii. lalupatebank-online (.com): not the bank; it only contains the bank's name.
✓ iv. bank-verify (.org): not the bank; the bank's name at the front is there to fool readers.

5 Short answers

a. **MARKING SCHEME** U · 2

✓ Availability is lost: the records still exist, correct and secret, but nobody can use them.
✓ Doctors need the records at once (medicines, allergies, test results), so treatment is delayed or done without important facts.

b. **MARKING SCHEME** A · 2

✓ The customer showed a fake or old "payment successful" screen (a screenshot, an edited picture or a fake app); no money was sent.
✓ Next time, check in the shop's own wallet app (or its payment speaker) that the money has arrived before handing over the goods.

c. **MARKING SCHEME** A · 3

✓ Someone else knows your password: they have passed the first step, and two-step login has stopped them at the second.
✓ Tap No.
✓ Change the password (and any account that used the same one) to a new random-word password, and tell an adult.

6 Calculation

ANSWER A · 2

1,500 + 4,000 + 9,500 = **Rs 15,000**, and there was never a phone.
The right moment to stop was **before the first fee:** a real prize never costs money to receive. Each fee was made to seem like the last step before the prize.

MARKING SCHEME

✓ 1,500 + 4,000 + 9,500 = Rs 15,000.
✓ Stop before the first fee, because a real prize never needs a fee to come in.

7 Long answer

ANSWER

A good plan (details will differ):

- **What:** all the family's photos and videos, and the scans of important documents.
- **Where:** an automatic online backup on each phone (on Wi-Fi only), plus a copy on a laptop or external hard disk at home, and a pen drive or hard disk kept with a relative in another place, brought back to update.

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- **How often:** the online backup every day by itself; the copies at home and at the relative's once a month, on a fixed day.
- **Checking:** every few months, open some photos from each copy to see that they really open.

A · 4

At least one copy must be away from home because some losses take everything in one place at once: a fire, a flood, an earthquake, a burglary, or ransomware that scrambles every device it can reach. A copy somewhere else survives them.

MARKING SCHEME

- ✓ What: the family's photos and videos (and scans of important documents).
- ✓ Where: at least two copies besides the phones, such as an automatic online backup and a copy at home, with at least one away from home.
- ✓ How often and how checked: automatic (or on a fixed day each month), and some photos opened from each copy now and then to see they work.
- ✓ Why away from home: a fire, flood, earthquake, burglary or ransomware can destroy everything in one place at once.

8 Think

ANSWER

HA · 2

There is more than one good answer, if it is explained. A strong one: teach her never to tell anyone a code or PIN, and to hang up on anyone who asks, because calls and messages asking for codes are the most common attack on wallet users, and no setting stops her from handing a code over. Another good choice: switch on two-step login and the app's PIN or fingerprint lock, which stops anyone who has only her password. Changing every password would help too, but it takes much longer, so it can be next week's job.

MARKING SCHEME

- ✓ A sensible single change: never tell a code or PIN to anyone, or switch on two-step login (or the app's PIN or fingerprint lock).
- ✓ Why: it stops the most common attack (people asking for codes), or stops anyone who has only her password, and it is quick to do.

9 Activity: A security check-up

(not marked)

WHAT STUDENTS SHOULD FIND

Most families find at least one gap: a phone that hasn't installed its updates for months, an account without two-step login, or photos that exist only on one phone. Often the oldest phone in the house has the most gaps. Updates and two-step login take a few minutes to fix; a backup that happens by itself, on Wi-Fi only, is the next step.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	7	6	16	2	**31**

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