Unit 9 · Data, Privacy and You

ANSWER KEY · FOR TEACHERS

Full marks 36

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

1 Key words

K · 4

1. personal data
2. inferred data
3. sensitive personal data
4. metadata
5. coordinates
6. data brokers
7. consent
8. re-identification

Each carries 0.5 mark.

2 How did the app get it?

U · 3

ANSWER

Data the app has about you	Given, recorded or guessed?
the date of birth you typed when you signed up	**Given**
how long you watched each video	**Recorded**
"probably about to buy a phone"	**Guessed** (inferred)
where your phone was when you opened the app	**Recorded**
the profile photo you posted	**Given**
"likes cricket", worked out from the videos you watched	**Guessed** (inferred)

MARKING SCHEME

- ✓ Given: the date of birth and the profile photo.
- ✓ Recorded: how long you watched and where the phone was.
- ✓ Guessed: "about to buy a phone" and "likes cricket".

3 Multiple choice

i. **c.** the time of the call and how long it lasted — K · 1

Metadata is data about the call: who, when, how long, through which tower. What was said and how it sounded are the call's content.

ii. **c.** inferred data — U · 1

Nobody told the app; it worked it out from what it recorded. A guess about you is still personal data, and it can be wrong.

iii. **b.** Someone who knows those facts about a student can find that student's row, and read their answers. — U · 1

A few facts together often fit only one person: re-identification. Leave out the birth date and ward, or group them, before sharing.

iv. **b.** only for the purpose it was collected for, except where the law demands it — K · 1

Section 12 says data collected with consent is to be used only for the purpose it was collected for, with exceptions such as a criminal investigation.

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v. **b.** a zoomed-in axis and cherry-picking U · 1

Starting at 9,000 makes small differences look big, and picking the three best months hides the rest of the year. The honest chart starts at 0 and shows every month.

4 True or false

i. ✓ **True** U · 3
ii. ✗ **False:** A few facts together, such as a ward, a date of birth and a sex, can still fit only one person.
iii. ✓ **True**
iv. ✗ **False:** Consent is real only when it is informed, free and specific, and can be taken back.
v. ✓ **True**
vi. ✗ **False:** A running total adds each month to the months before, so it can only go up.

Each carries 0.5 mark.

5 Calculations

a. ANSWER A · 3

Per 10,000 people: Town A: 40 ÷ 80,000 × 10,000 = **5.** Town B: 15 ÷ 20,000 × 10,000 = **7.5.** **Town B** has fewer accidents in total, but more for its number of people, so its roads are more dangerous for the people who live there.

MARKING SCHEME

✓ Town A: 40 ÷ 80,000 × 10,000 = 5 accidents per 10,000 people.
✓ Town B: 15 ÷ 20,000 × 10,000 = 7.5 accidents per 10,000 people.
✓ Town B, because it has more for its size (compare per person, not totals).

b. ANSWER A · 2

The price went up 3,000 ÷ 2,000 = **1.5 times.**
The second picture covers 1.5 × 1.5 = **2.25 times** the area, so it looks more than twice as big: the picture makes the rise look bigger than it is.

MARKING SCHEME

✓ Price: 3,000 ÷ 2,000 = 1.5 times.
✓ Picture: 1.5 × 1.5 = 2.25 times the area, so it looks bigger than the real rise.

6 Read the chart

MARKING SCHEME A · 3

✓ i. 5,000 ÷ 1,000 = 5 times as tall.
✓ ii. 4,000 ÷ 50,000 × 100% = 8%.
✓ iii. Axis from 0, every month shown, with a title and named axes.

7 Short answers

a. MARKING SCHEME A · 3

✓ Any two things, such as where she lives, her school, or when she is at home or away (from where and when the photos were taken).
✓ Turn off the camera's location, so new photos save no place.
✓ Check that a photo has no location before sending it as a file (or remove the location when sharing, or delete the photos already sent).

b. ANSWER

Real consent is:

- **informed:** you are told clearly what will be collected, for what, and who gets it;
- **free:** you can say no without being punished or tricked;
- **specific:** for this use, not for anything at all;
- **able to be taken back** later.

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Tapping “I agree” is often not real consent because the policy is too long and hard to read (so you aren’t informed), you can’t use the app without agreeing (so it isn’t free), and it often allows “any purpose” and “partners” (so it isn’t specific). U · 4

MARKING SCHEME

- ✓ Informed: told clearly what is collected, for what, and who gets it; free: you can say no without being punished or tricked.
- ✓ Specific: for this use, not anything at all; able to be taken back later.
- ✓ “I agree” to a long policy: almost nobody can read it all, so you aren’t really informed.
- ✓ You often can’t use the app without agreeing (not free), and it often allows “any purpose” and “partners” (not specific).

8 Long answer

ANSWER A · 4

With the names removed, each row still has a date of birth, a ward and a class. Together these often fit only one student, so anyone who knows those facts about a student (a classmate, a neighbor) can find that student’s marks: re-identification.
Safer: leave out the date of birth and the ward, or replace them with groups (an age group, the municipality); keep only what the research needs; check that every combination left fits several students with different results; and get the consent of the students’ parents or guardians, as Nepal’s Privacy Act requires for under-18s.

MARKING SCHEME

- ✓ Without names, each row still has a date of birth, a ward and a class, which together often fit only one student.
- ✓ Anyone who knows those facts about a student (a classmate, a neighbor) can find that student’s marks: re-identification.
- ✓ Leave out the date of birth and the ward, or group them (an age group, the municipality), and keep only what the research needs; check that each combination left fits several students.
- ✓ Get the consent of the students’ parents or guardians, as the Privacy Act requires for under-18s.

9 Think

ANSWER HA · 2

There is no single right answer, but a good one weighs both sides. **For:** better buses help everyone, and counts per ward don’t say where any one person went. **With care:** did the phone company’s customers agree to this use? Could a very small ward’s count single someone out? How long is the data kept, and who else may see it? It would be more comfortable if every count came from many people, the use were written down and limited to buses, the data were deleted afterwards, and the public were told.

MARKING SCHEME

- ✓ Weighs a benefit (better buses for everyone; counts don’t show one person) against a risk (consent, small counts singling someone out, how long it is kept, who else sees it).
- ✓ Names a condition that makes it safer: counts from many people only, the purpose limited, the data deleted afterwards, or the public told.

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10 Activity: Where were your photos taken?

(not marked)

WHAT STUDENTS SHOULD FIND

On most phones the camera saves the place unless it was turned off, so most photos will show a spot on a map; photos received in chat apps usually have none, because those apps remove it. A photo taken at home and sent as a file (a document in a chat, by email or Bluetooth) carries the home's place to whoever gets it. After the camera's location is turned off (Android: the camera's Save location, or its location permission; iPhone: Location Services → Camera → Never), the new photo should show no place.

Marks by level	Knowledge	Understanding	Application	Higher ability	**Total**
Marks	6	13	15	2	**36**

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