Data Literacy

Standard difficulty · 20 questions · 40 marks · Time: 37 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. Data literacy is the ability to:
(a) repair computers
(b) write programs only
(c) type quickly
(d) read, understand, analyse and communicate with data

2. What type of data are favourite sport chosen from a list?
(a) audio **(b)** image **(c)** categorical **(d)** text

3. An app asking before it shares your location: is this mainly about data privacy or data security?
(a) data cleaning **(b)** data security
(c) data privacy **(d)** data exploration

4. Which describes open data portals as a way of acquiring data?
(a) published datasets that anyone may use
(b) talking to people one at a time in detail
(c) watching and recording what happens
(d) devices that measure physical quantities automatically

5. A dataset of students:
Dev, age 110, score 89
Priya, age 150, score 41
Rohan, age 16, score 69
Dev, age 110, score 89
Zoya, age 15, score 93
Ananya, age 15, score 48
Zoya, age 15, score 93
Arjun, age —, score 77
Rahul, age 14, score 66
How many rows have a missing value (—)?
(a) 3 **(b)** 1 **(c)** 8 **(d)** 2

6. Visitors to a science fair website: August 120, September 170, October 230, November 250, December 300. In which month was the rise from the month before the largest?
(a) October **(b)** November **(c)** September **(d)** December

7. A school's password rules: (a) at least 8 characters; (b) an uppercase letter; (c) a lowercase letter; (d) a digit; (e) a symbol such as @, #, $ or !. Which made-up password follows every rule?
(a) PgCT@q6*A&tK **(b)** iGcZNzW*! **(c)** bg@667$ **(d)** dsY2uk2TH2

8. One score is missing: 31, 73, —, 37, 95. A common way to fill it is with the mean of the others. What value goes in?

(a) 60 **(b)** 59 **(c)** 47 **(d)** 95

Section B — Short answer 8 × 2 = 16 marks

9. What is data literacy, and why does it matter?

10. A dataset of students:
Isha, age 1, score 45
Meera, age 13, score 96
Zoya, age 250, score 95
Vikram, age —, score 51
Zoya, age 250, score 95
Dev, age 15, score 89
Rohan, age 14, score 87
Kabir, age 14, score 33
Kabir, age 14, score 33
Asha, age 15, score 71
How many rows (a) repeat an earlier row (b) have a missing value (—) (c) have an impossible age?

11. Website visits went from 100 in one month to 70 the next. What was the percentage decrease?

12. Password rules: (a) at least 8 characters; (b) an uppercase letter; (c) a lowercase letter; (d) a digit; (e) a symbol such as @, #, $ or !. Which rules does the made-up password m6nfy2$v4! break? Write the letters in order.

13. One value is missing from 88, 81, 76, 35, —. Fill it with the mean of the other four.

14. What type of data is each: numerical, categorical, text, image or audio? (a) photos of leaves (b) blood groups of volunteers

15. Explain each way of acquiring data: (a) cameras (b) surveys

16. Is each mainly about privacy or security? (a) Collecting only the data a survey really needs (b) Locking a database with strong passwords

Section C — Word problems — 4 × 4 = 16 marks

17. Explain the steps you would take to clean a dataset before using it for an AI model.

18. A dataset of students:
Zoya, age 2, score 65
Meera, age —, score 57
Asha, age 16, score —
Asha, age 16, score —
Isha, age 14, score 98
Arjun, age 13, score 44
Vikram, age 14, score 50
The data is cleaned by removing repeated rows, rows with a missing value and rows with an impossible age. (a) How many rows are removed? (b) How many rows are left? (c) What is the mean score of the rows left, to one decimal place?

19. Library visits: January 250, February 150, March 210, April 210, May 90. (a) What is the total? (b) In which month was the rise from the month before the largest? (c) What is the percentage change from January to May?

20. An online survey for an AI project gets 250 responses. 25 are exact repeats of earlier responses and 9 others leave required questions blank. (a) How many responses can be used? (b) What percentage of the responses is that? (c) Name one way to stop repeated responses in future.

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Answer key

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Q	Answer	Working
1	**(d) read, understand, analyse and communicate with data**	—
2	**(c) categorical**	—
3	**(c) data privacy**	—
4	**(a) published datasets that anyone may use**	—
5	**(b) 1**	check each row in turn
6	**(a) October**	September +50, October +60, November +20, December +50
7	**(a) PgCT@q6*A&tK**	check each rule for each password
8	**(b) 59**	31 + 73 + 37 + 95 = 236; ÷ 4
9	**The ability to read, understand, analyse and communicate with data; it helps people make informed decisions and spot misleading claims.**	—
10	**(a) 2; (b) 1; (c) 3**	check each row against each problem
11	**30%**	30 ÷ 100 × 100
12	**b**	length 10; check each rule
13	**70**	88 + 81 + 76 + 35 = 280; ÷ 4
14	**(a) image; (b) categorical**	—
15	**(a) capturing images or video to analyse (b) asking many people the same set of questions**	—
16	**(a) privacy; (b) security**	privacy: who may see and use data; security: protecting it from attack or theft
17	**Remove duplicate rows; handle missing values (fill with the mean or remove); fix or remove impossible values; make formats consistent; check labels.**	—
18	**(a) 4; (b) 3; (c) 64.0**	kept: Vikram 50, Isha 98, Arjun 44
19	**(a) 910; (b) March; (c) −64%**	(90 − 250) ÷ 250 × 100
20	**(a) 216; (b) 86.4%; (c) e.g. allow one response per person or check for duplicates automatically**	250 − 25 − 9; 216 ÷ 250 × 100

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