BANFES.ai
LEARNING · COMPUTING · AI

BANFES.ai PLACEMENT ASSESSMENT

Computing, Programming, Data and Artificial Intelligence

Level 3 to Level 4 Advanced Placement Test

Test 3 of 3 · Candidate Booklet

DURATION	QUESTIONS	SECTIONS	ANSWERS
180 minutes	150 MCQ	A Core · B Determining	One of A–D

Candidate full name	
Candidate ID	
Date of test	
Test centre / online session	
Selected test	☐ Test 1 Pre-Level 2 ☐ Test 2 Level 2 Entry ☒ Test 3 Level 3–4
Start time / finish time	
Invigilator name and signature	

Do not turn the page until the invigilator tells you to start.

This booklet is confidential assessment material. It must be returned at the end of the test and must not be copied, photographed or shared.

Version 1.0 · October 2026 · © 2026 BANFES.ai. All rights reserved.

About this test

Purpose

This test determines whether a candidate should enter INTERNATIONAL Level 3 or may be considered for direct entry to INTERNATIONAL Level 4 in Computer Science, Software Engineering and Artificial Intelligence. It assesses genuine Level 3 readiness across computational thinking, programming, mathematics and logic, computer systems and networks, data and databases, cybersecurity and responsible AI, and project practice. Direct entry to Level 4 is always subject to a short supervised practical verification task.

Who this test is for

Candidates who have completed INTERNATIONAL Level 2 with strong results, were invited after Test 2, or bring equivalent prior learning in programming and computing.

Test structure

Section	Questions	What it assesses	Suggested time
A Core Skills	1–120 (120)	Broad readiness across all domains listed below	about 120 minutes
B Determining	121–150 (30)	Harder, multi-step questions on transfer, reasoning, debugging, interpretation and decision-making	about 60 minutes
Total	**150**	Each question has four options (A–D) and exactly one correct answer.	**180 min**

Content areas

Section	Content area	Questions	Number
A	Computational thinking and structured problem-solving	1–20	20
A	Programming fundamentals: functions, loops, conditions, lists, code reading and debugging	21–50	30
A	Mathematics, Boolean logic, statistics, probability and data reasoning	51–70	20
A	Computer systems, operating systems, networks, web foundations and troubleshooting	71–85	15
A	Data, databases, data quality, keys, relationships and query reasoning	86–100	15
A	Cybersecurity, digital ethics, privacy, bias and responsible AI	101–110	10
A	Project planning, testing, documentation and academic practice	111–120	10
B	Advanced code tracing and debugging	121–128	8
B	Algorithm and data-structure selection in context	129–134	6
B	Statistical interpretation and misleading-data detection	135–138	4
B	Database design and query logic	139–142	4
B	Systems and network troubleshooting	143–145	3
B	Security, privacy and AI-governance decisions	146–148	3
B	Small project-design decisions under constraints	149–150	2

Possible outcomes

Result	Placement recommendation
Weak foundation	Direct to Test 2 or the Level 2 support pathway
Meets Level 3 entry standard	Enter INTERNATIONAL Level 3
Strong across all critical domains	Eligible for direct entry to INTERNATIONAL Level 4, subject to a supervised practical verification task

Your result is a placement recommendation, not a pass or fail. Answer honestly and on your own so that you are placed where you will learn best.

Instructions for candidates

1. The test has 150 multiple-choice questions in two sections: Section A Core Skills (1–120) and Section B Determining (121–150).
2. Each question has four options, A, B, C and D. Exactly one option is correct. Choose the best answer.
3. Every question is worth one mark. There is 30% penalty for a wrong answer, so answer every question carefully.
4. Read all of the information given (text, tables, code, diagrams and screenshots) before answering. Many questions depend on small details in that information.
5. Pseudocode in this booklet follows the conventions on the next page. Read them before you start.
6. If a question seems unclear, choose the best answer from the information given and continue. Invigilators cannot explain questions.

How to read the questions

Questions use realistic but fictional people, organisations, websites and data. Tables show small extracts of spreadsheets or records. Pseudocode is shown in a grey box. Spreadsheet formulas use the common form, for example =SUM(B2:B5).

Code and notation conventions used in this test

Most code is Python 3. Some questions use SQL or pseudocode. The reminders below describe standard behaviour; they are not hints for particular questions.

Notation	Meaning	Example
// and %	Integer (floor) division and remainder	17 // 5 = 3; 17 % 5 = 2; -7 // 2 = -4
range(a, b, s)	From a up to but NOT including b, in steps of s	list(range(1, 7, 2)) = [1, 3, 5]
xs[i], xs[-1], xs[a:b]	Index from 0; -1 is the last item; slice excludes b	[5, 6, 7, 8][1:3] = [6, 7]
dict d[k], d.get(k, v)	Value for key k; get returns v if k is missing	{'a': 1}.get('b', 0) = 0
and / or / not	Boolean operators (short-circuit evaluation)	False and f() does not call f
True / False, None	Boolean values; absence of a value	a function without return gives None
SELECT … FROM … WHERE … GROUP BY … HAVING … ORDER BY	Standard SQL clauses	COUNT(*) counts rows
Big-O, e.g. O(n), O(log n)	How work grows with input size n	binary search is O(log n)
A ∧ B, A ∨ B, ¬A	AND, OR, NOT in Boolean logic	¬(A ∧ B) = ¬A ∨ ¬B

Pseudocode, where used, follows the BANFES Test 2 conventions: SET x TO v, IF … THEN … END IF, FOR i FROM a TO b (inclusive), WHILE … END WHILE.

Declaration: I confirm that I will complete this test on my own, without help from any person, AI tool, website or unauthorised material.

Candidate signature: _____ Date: _____

SECTION A

Core Skills Section

Questions 1–120

120 questions across 7 content areas.

Suggested time: about 120 minutes.

Read each question and any table, code or picture carefully before choosing.

Computational thinking and structured problem-solving Questions 1–20

1 A college wants a tool that reads timetable data, detects room clashes and emails a report to administrators. Which decomposition gives the clearest, most testable design?

- **A** A module for each weekday, each doing reading, checking and emailing
- **B** A parser producing session records; a clash detector returning clashes; a reporter that sends them
- **C** A front-end module and a back-end module, with the clash-detection logic split between the two of them
- **D** One large function that reads, checks and emails in a single loop

2 A city journey planner must find the fastest route between metro stations, including changes between lines. Which abstraction is most suitable?

- **A** A list of stations in alphabetical order
- **B** A table of each station's opening hours
- **C** A weighted graph: stations as nodes, links as edges weighted by travel time (including interchanges)
- **D** A tree with the central station as the root, each metro line as a branch and the stations as its leaves

3 A program checks every pair of records in a list of 1,000 records exactly once, to look for duplicates. About how many comparisons does it make?

- **A** 1,000
- **B** 9,966
- **C** 499,500
- **D** 1,000,000

4 Binary search is used on the list [12, 3, 25, 8, 40, 17] to find 8. What is the main problem?

- **A** Binary search only works on lists with an even number of items
- **B** Binary search will always crash with an error on this list
- **C** Binary search cannot find numbers that are smaller than the first item in the list, such as 8 here
- **D** The list is unsorted, so the search may discard the half containing 8 and report it missing

5 A function is defined by $f(0) = 0$ and $f(n) = f(n - 1) + 2n$ for $n \geq 1$. What is $f(4)$?

- **A** 8
- **B** 16
- **C** 20
- **D** 30

6 A tournament bracket is drawn as a full binary tree. The root is level 0 and each node has two children, down to level 4. How many nodes does the tree contain?

- **A** 15
- **B** 16
- **C** 31
- **D** 32

7 A ticket gate behaves according to this table. It starts Locked with alarms = 0.

Current state	Event	Next state	Action
Locked	coin	Unlocked	—
Locked	push	Locked	alarms = alarms + 1
Unlocked	coin	Unlocked	refund coin
Unlocked	push	Locked	—

The events are: push, coin, coin, push, push, coin. What is the final state and the value of alarms?

A Locked, alarms = 2

B Locked, alarms = 1

C Unlocked, alarms = 1

D Unlocked, alarms = 2

8 Two sorted lists, [1, 4, 9] and [2, 3, 10], are merged by repeatedly comparing the front items and taking the smaller. When one list is empty, the rest of the other is copied without comparisons. How many comparisons are made?

A 3

B 5

C 6

D 9

9 A micro-loan app uses these rules:

Rule	Income	Existing debt	Decision
1	High	Low	Approve
2	High	High	Refer to officer
3	Low	High	Decline

Which situation is not covered by the rules?

A Low income with low existing debt

B High income with high existing debt

C Low income with high existing debt

D High income with low existing debt

10 A program must check whether any two numbers in a list of 100,000 integers add up to a target. Which approach is most efficient in time?

A Check every pair with two nested loops

B Go through the list once, checking whether target − x is already in a set of numbers seen so far

C Pick 1,000 random pairs and check them

D Sort the list first, and then check every possible pair of numbers in sorted order, from smallest up

11 A delivery driver must visit 15 stops and return to the depot. A developer suggests checking every possible route to guarantee the shortest. Why is a heuristic (such as "go to the nearest unvisited stop") usually used instead?

- **A** Computers cannot compare route lengths
- **B** The number of possible routes is in the billions, so checking all of them takes too long
- **C** Heuristics always find the shortest route faster
- **D** There are only 15 possible routes, so checking them is pointless

12 Trace this algorithm with a = 84 and b = 36:

```
while b != 0:
    a, b = b, a % b
print(a)
```

- **A** 0
- **B** 6
- **C** 12
- **D** 36

13 A drawing app must undo the most recent action first, then the one before it, and so on. Which structure fits best?

- **A** A stack
- **B** A queue
- **C** A set
- **D** A sorted list by action name

14 A function returns the average of a list of daily temperatures. It has been tested with [20, 22, 24] and [−5, 5]. Which additional test is most likely to reveal a defect?

- **A** [22, 22, 22]
- **B** [21, 23, 25]
- **C** An empty list []
- **D** [100, 200, 300]

15 A function's specification says: "sort_copy(xs) returns a new list with the items of xs in ascending order and does not modify xs." Which test checks the second requirement?

- **A** Call sort_copy on a list, then check that the original list is unchanged
- **B** Check that sort_copy([]) returns []
- **C** Check that sort_copy([3, 1, 2]) returns [1, 2, 3]
- **D** Measure how long sort_copy takes on 1,000 items

16 Three services, Auth, Search and Billing, must each run on one of three servers, S1, S2 or S3 (one service per server). Billing cannot run on S1. Search must run on a lower-numbered server than Auth. Auth cannot run on S3. Which server runs Billing?

A S2

B S1

C S3

D It cannot be determined

17 A robot moves on a grid from (0, 0) to (3, 2), using only moves of one step right or one step up. How many different paths are there?

A 5

B 6

C 10

D 32

18 x starts at 0. Each iteration does x = 2 * x + 1. What is x after 6 iterations?

A 12

B 63

C 64

D 127

19 A rural district wants to connect 9 villages with fibre cable so that every village is connected to every other (directly or indirectly), using the least total cable. Which standard problem is this?

A Minimum spanning tree

B Sorting the villages by population

C Shortest path between two villages

D Travelling salesperson tour

20 A photo archive has 10,000 files. Many are exact copies saved under different names. Which approach finds the duplicates most efficiently?

A Group files with the same date modified

B Group together all files that have the same file name, ignoring which folder each one is stored in

C Compare every file byte by byte with every other file

D Hash each file's contents, group files with identical hashes, then confirm the matches

Programming fundamentals: functions, loops, conditions, lists, code reading and debugging

Questions 21–50

21 What is printed?

```
xs = [3, 8, 1, 9, 4, 7]
print(xs[1:4], xs[-2])
```

A [8, 1, 9] 7

B [3, 8, 1, 9] 7

C [8, 1, 9, 4] 4

D [8, 1, 9] 4

22 What is printed?

```
a = [1, 2]
b = a
b.append(3)
print(a)
```

A [3]

B [1, 2, 3]

C [1, 2]

D An error, because a was not changed

23 What is printed?

```
def double(x):
    x * 2

print(double(3))
```

A None

B 6

C An error, because double has no return statement

D 3

24 What is printed?

```
s = "  Data,Science ,AI "
parts = [p.strip().lower() for p in s.split(",")]
print(parts)
```

A ['Data', 'Science', 'AI']

B ['data science ai']

C ['data', 'science', 'ai']

D [' data', 'science ', 'ai ']

25 What is printed?

```
words = "to be or not to be".split()
counts = {}
for w in words:
    counts[w] = counts.get(w, 0) + 1
print(counts["be"], len(counts))
```

A 2 4

B 1 4

C 2 5

D 2 6

26 What is printed?

```
total = 0
for n in range(1, 10):
    if n % 3 == 0:
        continue
    if n > 7:
        break
    total += n
print(total)
```

A 12

B 19

C 28

D 45

27 What is printed?

```
print(-7 // 2, -7 % 2)
```

A -3 1

B -3 -1

C -3.5 1

D -4 1

28 What is printed?

```
x = 5

def g():
    x = 10
    return x

g()
print(x)
```

A An error, because x is defined twice

B None

C 5

D 10

29 What is printed?

```
print([n * n for n in range(6) if n % 2])
```

A [1, 9, 25, 49]

B [0, 1, 4, 9, 16, 25]

C [0, 4, 16]

D [1, 9, 25]

30 What is printed?

```
grid = [[1, 2, 3],
        [4, 5, 6]]
print(sum(row[1] for row in grid))
```

A 5

B 7

C 15

D 21

31 This function should test whether a word reads the same backwards:

```
def is_palindrome(s):
    return s == s.reverse()
```

Calling is_palindrome("level") raises an error. Which line fixes the function?

A return s.reverse() == s.reverse()

B return s == reversed(s)

C return s == s[::-1]

D return s == s.sort()

32 This function should return the index of the largest value:

```
def index_of_max(xs):
    best = 0
    for i in range(1, len(xs) - 1):
        if xs[i] > xs[best]:
            best = i
    return best
```

index_of_max([3, 5, 2, 9]) returns 1. What is wrong?

A The comparison > should be >= so that equal values also update the variable best

B best should start at 1

C The function should return xs[best]

D range(1, len(xs) - 1) stops before the last index, so 9 is never checked

33 What is printed?

```
def r(n):
    if n <= 1:
        return 1
    return n * r(n - 2)

print(r(7))
```

A 15

B 48

C 105

D 5040

34 What is printed?

```
people = [("Ana", 31), ("Bo", 25), ("Cy", 31)]
ordered = sorted(people, key=lambda p: (-p[1], p[0]))
print(" ".join(p[0] for p in ordered))
```

A Ana Cy Bo

B Ana Bo Cy

C Bo Ana Cy

D Cy Ana Bo

35 What is printed?

```
try:
    n = int("12a")
    print("ok")
except ValueError:
    print("bad")
finally:
    print("done")
```

A bad only

B bad, then done

C done only

D ok, then done

36 What is printed?

```
a = [[0] * 2] * 2
a[0][0] = 1
print(a)
```

A An error, because lists cannot be multiplied

B [[1, 0], [0, 0]]

C [[1, 0], [1, 0]]

D [[1, 1], [0, 0]]

37 What is printed?

```
def f():
    print("f called")
    return True

print(False and f())
```

A False

B f called, then False

C f called, then True

D True

38 What is printed?

```
a, b = 1, 2
a, b = b, a + b
print(a, b)
```

A 1 3

B 2 4

C 2 3

D 3 2

39 What is printed?

```
out = ""
for i, ch in enumerate("abc", start=1):
    out += ch * i
print(out)
```

A bcc

B abc

C aabbcc

D abbccc

40 What is printed, and why?

```
def add(item, bag=[]):
    bag.append(item)
    return bag

add(1)
print(add(2))
```

A [1], because the second call is ignored

B An error, because bag is changed inside the function

C [2], because each call starts with a new empty list

D [1, 2], because the default list is created once and shared between calls

41 A program needs a function that calculates VAT so the result can be used in invoices, reports and tests. Which design is best?

A def vat(amount, rate): return round(amount * rate, 2)

B def vat(amount): global total; total = amount * 0.2

C def vat(): print(input() * 0.2)

D def vat(amount, rate): print(amount * rate)

42 What is printed?

```
scores = {"A": 3, "B": 7, "C": 5}
print(max(scores, key=scores.get))
```

A B

B 7

C A

D C

43 What is printed?

```
a = {1, 2, 3, 4}
b = {3, 4, 5}
print(sorted(a - b), len(a | b))
```

A [3, 4] 5

B [5] 5

C [1, 2] 7

D [1, 2] 5

44 What is printed?

```
stack = [1, 2, 3]
out = []
while stack:
    out.append(stack.pop())
print(out)
```

A [3, 2, 1]

B [1, 2, 3]

C []

D An infinite loop

45 What happens when this code runs?

```
i = 0
while i < 5:
    if i % 2 == 0:
        continue
    print(i)
    i += 1
```

A It raises an error because continue is not allowed in while loops

B It never ends, because when i is 0 continue skips the increment

C It prints 0, 2 and 4

D It prints 1 and 3

46 What does this function return for [3, 1, 3, 2, 1]?

```
def mystery(xs):
    return [x for i, x in enumerate(xs) if x not in xs[:i]]
```

A [2]

B [1, 2, 3]

C [3, 1, 2]

D [3, 1, 3, 2, 1]

47 What is printed?

```
class Counter:
    def __init__(self):
        self.n = 0
    def inc(self):
        self.n += 1
        return self

c = Counter()
c.inc().inc()
print(c.n)
```

A An error, because inc() cannot be called on its own result

B 0

C 1

D 2

48 What is printed?

```
s = "cat"
s.upper()
print(s)
```

A CAT

B cat

C Cat

D None

49 A function says a year is a leap year if year % 4 == 0. The full rule also says: century years are leap years only if divisible by 400. Which test case reveals the bug?

A 2000, which should be a leap year

B 2024, which should be a leap year

C 1900, which should NOT be a leap year

D 2023, which should not be a leap year

50 log.txt contains 2 lines. This code runs three times:

```
with open("log.txt", "a") as f:
    f.write("run\n")
```

How many lines does log.txt contain afterwards?

A 1

B 2

C 3

D 5

Mathematics, Boolean logic, statistics, probability and data reasoning Questions 51–70

51 A program grants access unless the user is BOTH suspended AND unverified: if not (suspended and unverified). Which condition is equivalent?

- **A** not suspended and unverified
- **B** (not suspended) or (not unverified)
- **C** (not suspended) and (not unverified)
- **D** suspended or unverified

52 For three Boolean inputs A, B and C (8 combinations), in how many combinations is (A ∨ B) ∧ ¬C true?

- **A** 2
- **B** 3
- **C** 4
- **D** 6

53 A colour code uses the hexadecimal value 2F for its red channel. What is 2F in decimal?

- **A** 27
- **B** 32
- **C** 47
- **D** 215

54 A sensor stores readings as 8-bit two's complement integers. One reading is 11111011. What is its value?

- **A** -123
- **B** -5
- **C** -4
- **D** 251

55 Today is Wednesday. What day of the week will it be in 100 days?

- **A** Saturday
- **B** Thursday
- **C** Friday
- **D** Wednesday

56 Two fair six-sided dice are rolled. What is the probability that the total is 7?

- **A** 1/11
- **B** 1/12
- **C** 1/6
- **D** 7/36

57 A bag holds 3 red and 2 blue counters. Two counters are taken without replacement. What is the probability that both are red?

A 9/25

B 3/10

C 1/2

D 3/5

58 Two classes took the same quiz (out of 10):

Class	Scores
P	5, 5, 6, 5, 4, 5
Q	1, 9, 2, 8, 5, 5

Which statement is correct?

A P has the higher mean

B The two classes have identical distributions

C Q has a smaller standard deviation because it contains a 9

D Both classes have mean 5, but Q's scores are much more spread out

59 A module grade is: coursework 20%, project 30%, exam 50%. Leila scores 80, 70 and 60. What is her module grade?

A 67

B 70

C 73

D 210

60 A cloud service raises its price from $100 by 10%, then later reduces the new price by 10%. What is the final price?

A $90

B $99

C $100

D $101

61 About how many comparisons does binary search need, in the worst case, to search a sorted list of 1,000,000 items?

A About 20

B About 6

C About 500,000

D About 1,000

62 In a group of 40 learners, 25 know Python, 18 know SQL and 7 know neither. How many know both?

A 3

B 10

C 18

D 43

63 A learner saves 3 coins in week 1, 7 in week 2, 11 in week 3, and so on, adding 4 more each week, up to 39 coins in the final week. How many coins are saved in total?

A 39

B 171

C 210

D 420

64 Data show that months with higher ice-cream sales also have more swimming accidents. Which conclusion is most reasonable?

A A third factor, such as hot weather, probably increases both

B Swimming accidents cause people to buy ice cream

C The data must be wrong because the two are unrelated

D Eating ice cream causes swimming accidents

65 A charity game costs $2 to play. You win $10 with probability 0.15; otherwise you win nothing. What is the expected gain per game?

A $1.50

B -$0.50

C $8.00

D $0.00

66 Statement: "If the server is overloaded, then the response time is above 2 seconds." Which statement is logically equivalent?

A If the server is not overloaded, then the response time is not above 2 seconds

B If the response time is above 2 seconds, then the server is overloaded

C The server is overloaded only when the response time is under 2 seconds

D If the response time is not above 2 seconds, then the server is not overloaded

67 For very large n, which list is ordered from SLOWEST-growing to FASTEST-growing?

A $\log n$, $n \log n$, n^2, 2^n

B 2^n, n^2, $n \log n$, $\log n$

C $\log n$, n^2, $n \log n$, 2^n

D n^2, $n \log n$, $\log n$, 2^n

68 To estimate how many people in a region lack home internet, a researcher posts an online survey on social media. What is the main problem?

- **A** The survey is too short
- **B** People without internet are unlikely to answer an online survey, so they will be undercounted
- **C** Online surveys cannot record yes/no answers
- **D** The sample will be far too large to analyse properly, because social media reaches millions of people

69 A candidate's score is at the 90th percentile of all candidates. What does this mean?

- **A** The candidate scored higher than about 90% of candidates
- **B** The candidate scored 90 points
- **C** The candidate answered 90% of questions correctly
- **D** 90% of candidates scored higher than this candidate

70 A script processes 1,200 records in 15 seconds. At the same rate, how long will 50,000 records take?

- **A** About 10.4 minutes
- **B** About 41.7 minutes
- **C** About 6.25 minutes
- **D** About 1.04 minutes

Computer systems, operating systems, networks, web foundations and troubleshooting

Questions 71–85

71 A laptop has the address 192.168.1.37/24. Which device is in the same local network?

- **A** 192.169.1.37
- **B** 192.168.1.200
- **C** 192.168.2.37
- **D** 10.168.1.37

72 A user can successfully ping 8.8.8.8, but browsers show "server not found" for every website name. What is the most likely cause?

- **A** DNS is not resolving names to addresses
- **B** The websites are all down
- **C** The network cable is unplugged
- **D** The screen resolution is wrong

73 A computer shows the IP address 169.254.12.7 and cannot reach the internet. What does this most likely indicate?

- **A** It did not receive an address from a DHCP server and assigned itself a link-local address
- **B** Its DNS server address has been set to 169.254.12.7 by mistake, so no website names can be found
- **C** It has a static public IP address
- **D** It is correctly connected to the internet

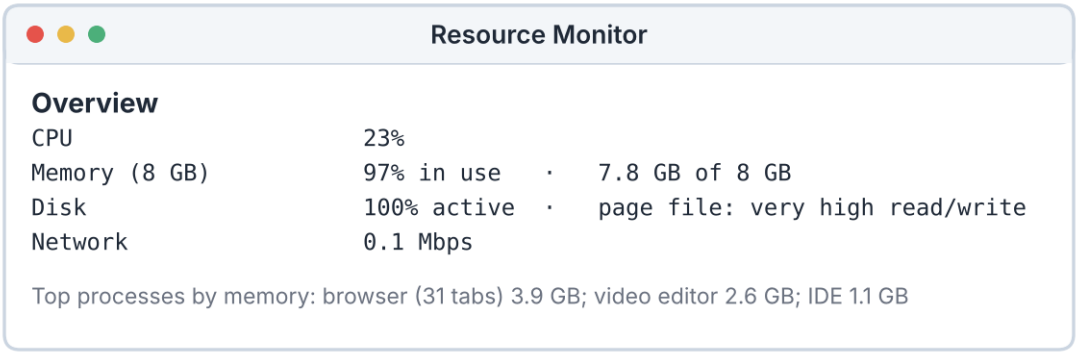
74 After a new deployment, users see an error page and the server log shows HTTP 500 for every request to /checkout. Where is the problem most likely?

- **A** The /checkout page no longer exists on the server after the new deployment
- **B** In the server-side application code or configuration for /checkout
- **C** In the user's browser cache
- **D** The user lacks permission

75 A new web server's firewall allows incoming TCP port 80 only. Visitors to http:// pages are fine, but https:// pages time out. What is the fix?

- **A** Disable encryption on the website
- **B** Allow incoming TCP port 443
- **C** Allow incoming UDP port 80
- **D** Restart the browser on each visitor's computer

76 A laptop is very slow. Its resource monitor shows:



What is the most likely cause?

- **A** The CPU is overloaded
- **B** The network connection is too slow for the browser's 31 open tabs
- **C** Not enough RAM, so the system is constantly swapping data to disk
- **D** The screen refresh rate is too low

77 A file has the permissions -rw-r----- and belongs to user ana and group staff. Ben is in the group staff. What can Ben do?

- **A** Read and write the file
- **B** Nothing, because he is not the owner
- **C** Read the file but not change it
- **D** Execute the file

78 Kofi cannot copy a 6 GB video to a USB drive that has 20 GB free. The error says the file is too large for the destination. The drive is formatted as FAT32. Why?

- **A** The drive needs more than 6 GB of extra free space
- **B** FAT32 cannot store a single file larger than 4 GB
- **C** The drive is write-protected
- **D** Video files cannot be copied to USB drives

79 On a web page, a button changes colour and shows a message when clicked, without reloading. Which technology handles the click and shows the message?

- **A** JavaScript running in the browser
- **B** The web server's database
- **C** HTML
- **D** CSS alone

80 A tutor's video calls are choppy, with long delays in conversation. A test shows: download 85 Mbps, upload 20 Mbps, ping 450 ms, packet loss 0%. What is the main problem?

- **A** High latency
- **B** Packet loss
- **C** Low download bandwidth
- **D** Low upload bandwidth

81 A developer updates style.css on a website, but some users still see the old styling for days. What is the most likely cause, and a robust fix?

- **A** The server stores only one CSS file per day
- **B** CSS changes require users to reinstall their browser
- **C** The new CSS file contains a syntax error, so every browser falls back to the previous version of the file
- **D** Browsers are using a cached copy; change the file name or add a version parameter when it changes

82 A learning platform slows down during exams. The team adds four more identical application servers behind a load balancer. What is this called?

- **A** Vertical scaling
- **B** Normalisation
- **C** Caching
- **D** Horizontal scaling

83 A college network uses a /26 subnet. How many usable host addresses does it provide?

- **A** 26
- **B** 62
- **C** 64
- **D** 254

84 A desktop powers on (fans spin) but shows nothing on the monitor. What is the best first step?

- **A** Replace the motherboard
- **B** Reinstall the operating system, since a corrupted system can stop the display from working at all
- **C** Update the web browser
- **D** Check that the monitor is on, the cable is connected and the correct input is selected

85 A web form saves the word "Café", but a report shows it as "CafÃ©". What is the most likely cause?

A The text was stored as UTF-8 but read as Latin-1 (or Windows-1252)

B The database cannot store letters with accents

C The font in the report is missing the letter é

D The user typed the word incorrectly

Data, databases, data quality, keys, relationships and query reasoning Questions 86–100

86 A table stores learners. Which column is the best primary key?

A email, because each learner usually has their own personal address

B learner_id, a number generated by the system for each learner

C full_name, because every learner has a name

D phone_number

87 Each learner can take many courses, and each course has many learners. How should this be stored in a relational database?

A A course_id column in the Learner table

B A comma-separated list of course names in each learner row

C A learner_id column in the Course table

D A separate Enrolment table with learner_id and course_id as foreign keys

88 Table Course:

code	level	mode	seats
C1	3	online	20
C2	4	campus	12
C3	3	campus	8
C4	4	online	30
C5	3	online	5

```
SELECT code FROM Course
WHERE level = 3 AND (mode = 'online' OR seats > 10);
```

Which codes are returned?

A C1 only

B C1 and C5

C C1, C4 and C5

D C1, C3 and C5

89 Table Enrolment:

learner	course
L1	C1
L1	C2
L2	C1
L3	C1
L3	C2
L3	C3

```
SELECT learner, COUNT(*) FROM Enrolment
GROUP BY learner
HAVING COUNT(*) >= 2;
```

How many rows are returned?

A 1

B 2

C 3

D 6

90 Learner has 4 rows (L1–L4). Enrolment has 5 rows: L1 has 2, L2 has 3, L3 and L4 have none. How many rows does this query return?

```
SELECT l.id, e.course
FROM Learner l
LEFT JOIN Enrolment e ON e.learner = l.id;
```

A 4

B 5

C 7

D 20

91 A table stores one row per enrolment: (learner_id, course_code, course_title, tutor_name, tutor_email). A tutor changes email address. What problem does this design cause?

A The table cannot store more than one course

B Learners linked to that tutor will be deleted automatically by the database system

C Tutor emails cannot be stored in databases

D The email must be updated in many rows, and missing one leaves inconsistent data

92 A payments table stores amounts such as 19.99. Which column type is most appropriate?

A INTEGER, storing 19.99 as 19

B FLOAT

C VARCHAR(10)

D DECIMAL(10, 2)

93 Some learners have no score recorded (NULL). What does this query return?

```
SELECT * FROM Result WHERE score = NULL;
```

- **A** An error, because NULL cannot appear in SQL
- **B** No rows, because comparing with NULL using = is never true
- **C** All rows with no score
- **D** All rows

94 A dataset records dates as 2026-03-04, 04/03/2026 and March 4, 2026 in the same column. Which data-quality problem is this mainly?

- **A** Inconsistency of format
- **B** Incompleteness
- **C** Duplication
- **D** Timeliness

95 A score column contains 80, NULL, 60, 70, NULL. What does SELECT AVG(score) return?

- **A** 42
- **B** 52.5
- **C** NULL
- **D** 70

96 Table Score has values 72, 95, 88, 95 and 60 (one per row). What does this query return?

```
SELECT DISTINCT value FROM Score
ORDER BY value DESC
LIMIT 1 OFFSET 1;
```

- **A** 60
- **B** 72
- **C** 88
- **D** 95

97 Each course has exactly one lead tutor, and a tutor can lead many courses. Where should the foreign key go?

- **A** A course_id column in the Tutor table
- **B** No foreign key is needed
- **C** A new table joining every tutor to every course
- **D** A tutor_id column in the Course table

98 A query that finds users by email takes several seconds on a table of 2 million rows. Email is not indexed. What is the best first improvement?

- **A** Change the email column to an integer
- **B** Add more columns to the table
- **C** Create an index on the email column
- **D** Delete half of the users

99 A program splits each CSV line with line.split(","). One line is: 105,"Lagos, Nigeria",3. The program reports 4 fields instead of 3. Why?

- **A** The quoted field contains a comma, so split breaks it; a quote-aware CSV parser is needed
- **B** The number 105 is too long
- **C** split(",") always returns one extra empty field at the end of every line, so 4 fields is normal
- **D** CSV files cannot contain city names

100 Enrolment.course_id is a foreign key to Course.id with no cascade rule. An administrator tries to delete a course that still has enrolments. What happens?

- **A** The course is renamed instead
- **B** The course is deleted and its enrolments keep pointing to it
- **C** The database rejects the delete to keep referential integrity
- **D** All learners in the course are deleted

Cybersecurity, digital ethics, privacy, bias and responsible AI Questions 101–110

101 A developer is building a login system. How should user passwords be stored?

- **A** As salted hashes using a slow password-hashing algorithm such as bcrypt or Argon2
- **B** In plain text, so support staff can tell users their password
- **C** As a fast unsalted hash such as MD5
- **D** Encrypted with a key stored on the same server

102 A login page builds this query:

```
query = "SELECT * FROM users WHERE name = '" + name + "'"
```

What is the main risk, and the correct fix?

- **A** Weak passwords; require longer passwords
- **B** Cross-site scripting; encode the HTML output
- **C** SQL injection; use parameterised queries
- **D** Slow queries; add an index on name

103 A new intern needs to view monthly sales reports. Which access should be given?

- **A** A read-only role for the reports folder
- **B** The administrator account, to avoid delays
- **C** The manager's password, temporarily
- **D** Edit access to the entire finance drive

104 A face-matching system for exam check-in was tested:

Group	Images tested	False rejections
Group 1	1,000	8
Group 2	1,000	61

What is the most appropriate response?

- **A** Treat it as unfair: offer a manual check, do not rely on it alone, and investigate the cause
- **B** Increase the threshold so everyone is accepted
- **C** Use it as it is, because the overall error rate across both groups is under 4%, which is acceptable
- **D** Use it only for Group 1

105 A study app needs to confirm users are at least 16. Which design best follows data minimisation?

- **A** Ask users to confirm they are 16 or older, or ask only for birth year
- **B** Collect nothing and assume all users are adults
- **C** Require a photo of a national ID card
- **D** Ask for full date of birth, home address and phone number

106 A college launches an AI chatbot for student support. Which design is most responsible?

- **A** Let the chatbot make final decisions on appeals
- **B** Tell users they are talking to an AI, allow an easy handover to a human, and log issues for review
- **C** Remove all logging to protect privacy
- **D** Present the chatbot as a human staff member so students trust it

107 A staff laptop containing learner records is stolen while powered off. Which control best protects the data?

- **A** HTTPS on the college website
- **B** Antivirus software
- **C** A strong Wi-Fi password
- **D** Full-disk encryption

108 A software site publishes the SHA-256 hash of its installer. Why should Leila compare it with the hash of the file she downloaded?

- **A** To make the download faster
- **B** To check that the file has not been corrupted or tampered with
- **C** To register the software licence with the publisher during installation
- **D** To decrypt the installer

109 A start-up plans to train a chatbot by copying thousands of posts, with usernames and personal stories, from a public health-support forum. Which is the most important concern?

- **A** Forum posts are too short to train a model
- **B** Sensitive personal data used without consent, possibly breaching the forum's terms and data law
- **C** The posts are written in many different styles and lengths, which may confuse the model during training
- **D** The forum might become less popular

110 An audit finds that a cloud storage bucket with learner certificates is set to "public: anyone can list and read". What is the first action?

- **A** Rename the bucket
- **B** Wait for the next scheduled audit, and then fix all of the problems that it finds together in one go
- **C** Delete all certificates permanently
- **D** Make the bucket private immediately, then review access logs and assess what was exposed

Project planning, testing, documentation and academic practice

Questions 111–120

111 Which requirement for a booking app is most testable?

- **A** The app should use modern technology
- **B** The confirmation page loads within 2 seconds for 95% of requests with 200 concurrent users
- **C** The app should be fast
- **D** The app should be user-friendly, attractive and easy for all learners and tutors to use every day

112 A team checks that the payment module and the booking module work correctly together when a user books and pays. What kind of testing is this?

- **A** Integration testing
- **B** Load testing
- **C** Unit testing
- **D** Accessibility testing

113 Two developers changed the same line in config.py on different branches. When merging, Git reports a conflict. What is the correct approach?

- **A** Force-push one branch over the other
- **B** Always keep the version from the developer who is performing the merge, because they are responsible
- **C** Delete the file and create it again
- **D** Edit the file to the correct version (or a combination), test it, and commit the resolution

114 A team has 4 weeks to deliver the first version of a homework-tracking app. Which feature is the "Must have"?

A Dark mode

B Integration with every school system in the country

C Learners can record a homework task with a due date

D Animated badges for streaks

115 Project tasks (durations in days):

Task	Duration	Depends on
A Requirements	3	—
B Database design	4	A
C Interface design	2	A
D Build	5	B and C
E Testing	2	D

Which task can be delayed by 2 days without delaying the whole project?

A B Database design

B D Build

C C Interface design

D E Testing

116 Which docstring is most useful for the function late_fee(days_late, daily_rate)?

A "This function calculates the late fee for a library. It has been tested and works correctly in all normal cases."

B "late_fee function"

C "Written on Tuesday by Ana."

D "Return the late fee as days_late × daily_rate. Returns 0 if days_late ≤ 0. Raises ValueError if daily_rate < 0."

117 For a project, Omar adapts a 20-line function from an online Q&A site and uses an AI assistant to help write tests. The course allows declared use of external sources. What should he do?

A Rename the variables so the code becomes his own

B Nothing, because short code snippets and AI-written tests never need to be credited in a project

C Remove the code comments to hide where it came from

D Credit the source, check its licence, and declare the AI help as the course requires

118 A project risk register scores likelihood and impact from 1 (low) to 5 (high):

Risk	Likelihood	Impact
R1 Key developer unavailable	2	5
R2 Cloud costs higher than budget	4	3
R3 Minor visual bugs at launch	5	1
R4 Data breach	1	5

Using likelihood × impact, which risk should be addressed first?

A R1

B R2

C R3

D R4

119 A developer fixes a bug in the discount calculation. What should be done before release?

A Test only the exact case from the bug report

B Delete old tests that might fail

C Release it immediately, because such a small fix to one calculation cannot affect any other features

D Run the full automated test suite, including tests for features unrelated to discounts

120 Two weeks before delivery, a client asks for three new features. The team is already at full capacity. What is the best response?

A Assess the impact on time and cost, agree priorities with the client, and record the change

B Accept all three and work weekends without telling anyone

C Add the features quietly and skip testing

D Refuse to discuss any of the new changes until the current contract has fully ended and been paid

SECTION B

Determining Section

Questions 121–150

30 questions that are more demanding than Section A.

They test transfer, reasoning, debugging, interpretation and decision-making.

Suggested time: about 60 minutes.

Before you start Section B

These questions carry the same mark as Section A questions but usually need more steps.

Work carefully on paper: trace values, redraw tables, check each condition.

If a question takes too long, mark your best answer, note the number and return to it later.

Advanced code tracing and debugging Questions 121–128

121 What is printed?

```
def paths(r, c):
    if r == 0 or c == 0:
        return 1
    return paths(r - 1, c) + paths(r, c - 1)

print(paths(2, 3))
```

A 5

B 6

C 10

D 20

122 What is printed?

```
pairs = [("Ana", "red"), ("Bo", "blue"), ("Cy", "red"),
         ("Di", "green"), ("Ed", "blue")]
groups = {}
for name, team in pairs:
    groups.setdefault(team, []).append(name)
print(sorted((t, len(m)) for t, m in groups.items()))
```

A [('blue', 1), ('green', 1), ('red', 1)]

B [('blue', 2), ('green', 1), ('red', 3)]

C [('blue', 2), ('green', 1), ('red', 2)]

D [('red', 2), ('blue', 2), ('green', 1)]

123 This function should return the index of target in a sorted list, or -1:

```
def find(xs, target):
    lo, hi = 0, len(xs) - 1
    while lo < hi:
        mid = (lo + hi) // 2
        if xs[mid] == target:
            return mid
        elif xs[mid] < target:
            lo = mid + 1
        else:
            hi = mid - 1
    return -1
```

find([2, 4, 6, 8, 10], 10) returns -1. Which change fixes the function?

A Change while lo < hi to while lo <= hi

B Change mid = (lo + hi) // 2 to mid = (lo + hi) // 2 + 1

C Change hi = mid - 1 to hi = mid

D Change lo, hi = 0, len(xs) - 1 to lo, hi = 0, len(xs)

124 What is printed?

```
xs = [1, 2, 2, 3, 4]
for x in xs:
    if x % 2 == 0:
        xs.remove(x)
print(xs)
```

A [1, 2, 2, 3, 4]

B [1, 3]

C [1, 2, 3]

D An error, because a list cannot change during a loop

125 What is printed?

```
def check(s):
    pairs = {")": "(", "]": "["}
    stack = []
    for i, ch in enumerate(s):
        if ch in "([":
            stack.append(ch)
        elif ch in pairs:
            if not stack or stack.pop() != pairs[ch]:
                return i
    return -1 if not stack else len(s)

print(check("([)]"), check("(()"), check("[()]"))
```

A 3 3 -1

B 2 -1 -1

C 2 3 -1

D -1 3 -1

126 What is printed?

```
records = [("Ana", 82), ("Bo", 75), ("Cy", 82), ("Di", 90)]
records.sort(key=lambda r: r[1], reverse=True)
print([r[0] for r in records])
```

A ['Di', 'Ana', 'Cy', 'Bo']

B ['Ana', 'Bo', 'Cy', 'Di']

C ['Bo', 'Ana', 'Cy', 'Di']

D ['Di', 'Cy', 'Ana', 'Bo']

127 This function should return the average score for each course:

```
1  def averages(rows):
2      totals, counts = {}, {}
3      for course, score in rows:
4          totals[course] = totals.get(course, 0) + score
5          counts[course] = counts.get(course, 1) + 1
6      return {c: totals[c] / counts[c] for c in totals}
```

For rows [("A", 80), ("A", 60), ("B", 90)] it returns about {'A': 46.7, 'B': 45.0}. Which change fixes it?

A In line 2, use lists instead of dictionaries

B In line 5, change counts.get(course, 1) to counts.get(course, 0)

C In line 4, change totals.get(course, 0) to totals.get(course, 1)

D In line 6, divide by len(rows) instead of counts[c]

128 What is printed?

```
def pairs(xs, target):
    xs = sorted(xs)
    i, j = 0, len(xs) - 1
    out = []
    while i < j:
        s = xs[i] + xs[j]
        if s == target:
            out.append((xs[i], xs[j]))
            i += 1
            j -= 1
        elif s < target:
            i += 1
        else:
            j -= 1
    return out

print(pairs([7, 1, 5, 3, 9, 4, 6], 10))
```

A [(7, 3), (1, 9), (4, 6)]

B [(1, 9), (3, 7), (4, 6), (5, 5)]

C [(1, 9)]

D [(1, 9), (3, 7), (4, 6)]

Algorithm and data-structure selection in context Questions 129–134

129 An exam system holds 2 million candidate records in memory and must look up a candidate by ID thousands of times per second. Insertions are rare. Which structure is best?

A A hash map (dictionary) keyed by candidate ID

B A queue of records

C A stack of records

D An unsorted list searched from the start

130 A code editor needs both Undo and Redo. After an undo, the user may redo; after a new edit, redo history is cleared. Which design fits best?

- **A** One queue holding all actions in time order, removing the oldest action first each time undo is used
- **B** A set of all actions
- **C** Two stacks: undo moves an action to the redo stack; a new edit clears the redo stack
- **D** One sorted list of actions by type

131 A college print server must always print the most urgent job next. Jobs arrive at any time with a priority from 1 to 10, and there may be thousands waiting. Which structure is most appropriate?

- **A** An unsorted list scanned in full for every job
- **B** A priority queue implemented as a heap
- **C** A stack
- **D** A plain queue

132 A dictionary app must suggest words as the user types, for example all words starting with "com", from 500,000 words, on low-end phones. Which structure is the best fit?

- **A** A stack of words
- **B** An unsorted list scanned on each key press
- **C** A hash set of words
- **D** A trie (prefix tree)

133 A delivery app must find the fastest route between two points. Roads have different travel times, all positive. Which algorithm is appropriate?

- **A** Depth-first search returning the first route found
- **B** Breadth-first search counting the number of roads
- **C** Sorting the roads by length and taking the first ones
- **D** Dijkstra's algorithm

134 A sensor app keeps only the most recent 100 temperature readings: each new reading is added and, once there are 100, the oldest is removed. Which structure fits best?

- **A** A hash map keyed by temperature
- **B** A binary search tree ordered by temperature
- **C** A queue (for example a double-ended queue or circular buffer) of length 100
- **D** A stack

Statistical interpretation and misleading-data detection Questions 135–138

135 A college uses an AI-text detector. About 1% of submitted essays are actually AI-written. The detector flags 99% of AI-written essays, and also wrongly flags 5% of human-written essays. An essay is flagged. Approximately what is the probability that it is actually AI-written?

A About 99%

B About 50%

C About 95%

D About 17%

136 Pass rates for two tutors:

Tutor	Easy course	Hard course	Overall
X	18/20 (90%)	40/80 (50%)	58/100 (58%)
Y	70/80 (87.5%)	8/20 (40%)	78/100 (78%)

Which conclusion is best supported?

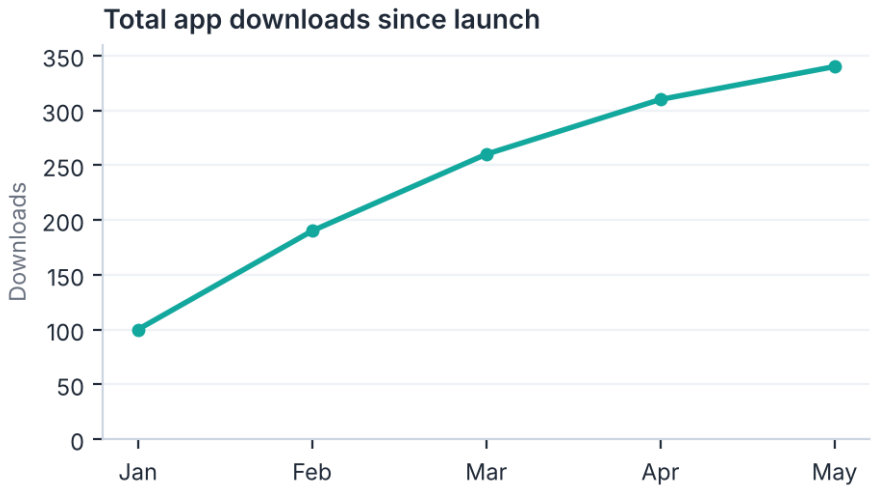
A X is better on the easy course only

B The table must contain an error, because the overall result cannot be reversed

C Y is the more effective tutor because 78% is higher than 58%

D X has the higher pass rate in each course; Y's higher overall rate comes from teaching mostly the easy course

137 A start-up's report shows this chart with the caption "Downloads are growing strongly every month!"



What does the chart actually show about NEW downloads each month?

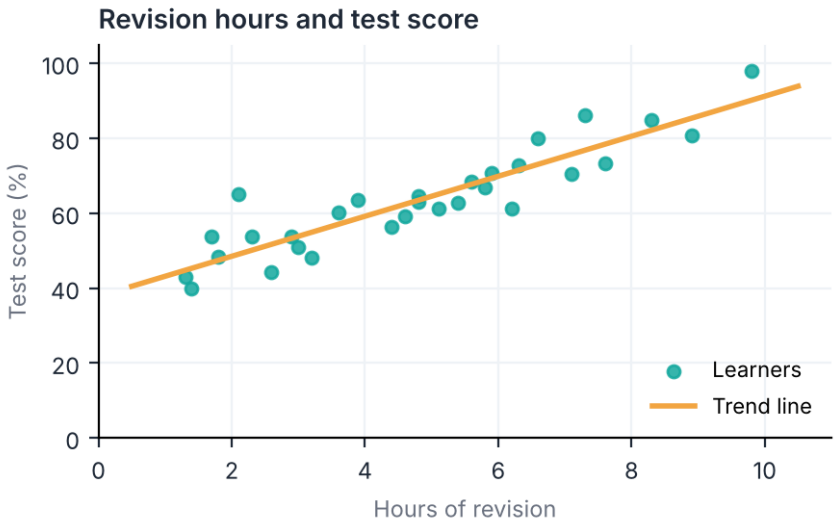
A They are rising every month

B They are constant at about 68 per month

C Nothing, because cumulative charts cannot be used to find monthly values

D They are falling: 100, 90, 70, 50, 30

138 Data from 30 learners show hours of revision (1 to 10) and test score (%):



A blog post uses the trend line to claim: "Revising for 40 hours will give a score of about 240%." What is the main error?

A Extrapolating far beyond the data range; the pattern is unsupported and scores cannot exceed 100%

B 30 learners is too many for a scatter plot

C The trend line should pass exactly through every point, so it has been drawn incorrectly on the chart

D The correlation is negative

Database design and query logic Questions 139–142

139 A booking system has Learner(id, name) and Session(id, title, start_time). Learners can book many sessions; sessions have many learners. A learner must not book the same session twice. Which design is best?

A Booking(learner_id, session_id, booked_at) with foreign keys and a UNIQUE constraint on (learner_id, session_id)

B Booking(learner_id, session_id) with an index on booked_at only

C Add a session_id column to Learner

D Booking(id, learner_name, session_title) with no constraints

140 Learner: (L1, Ana), (L2, Bo), (L3, Cy). Enrolment: (L1, C1), (L1, C2), (L2, C1). The report should show 0 for learners with no enrolments.

```
SELECT l.name, COUNT(*) AS n
FROM Learner l
LEFT JOIN Enrolment e ON e.learner = l.id
GROUP BY l.name;
```

The report shows Cy with n = 1. Which change fixes it?

A Add WHERE e.course IS NOT NULL

B Replace COUNT(*) with COUNT(e.course)

C Replace GROUP BY l.name with GROUP BY e.course

D Replace LEFT JOIN with INNER JOIN

141 Which query lists the names of learners enrolled in MORE than 2 courses?

A SELECT l.name FROM Learner l JOIN Enrolment e ON e.learner = l.id HAVING COUNT(*) > 2;

B SELECT l.name FROM Learner l JOIN Enrolment e ON e.learner = l.id WHERE COUNT(*) > 2 GROUP BY l.id, l.name;

C SELECT l.name FROM Learner l JOIN Enrolment e ON e.learner = l.id GROUP BY l.id, l.name HAVING COUNT(*) > 2;

D SELECT l.name FROM Learner l JOIN Enrolment e ON e.learner = l.id GROUP BY l.id, l.name HAVING COUNT(*) >= 2;

142 A table Booking(booking_id, learner_name, learner_phone, room_no, room_capacity, date) repeats learner and room details in many rows. Which design best removes this redundancy and keeps all information?

A Learner(learner_id, name, phone); Room(room_no, capacity); Booking(booking_id, learner_id, room_no, date)

B Booking(booking_id, date) and Details(learner_name, learner_phone, room_no, room_capacity)

C One table per room, each with the same columns as before

D Remove room_capacity and learner_phone to save space

Systems and network troubleshooting Questions 143–145

143 A staff PC can print to a printer on the same network but cannot reach any website. Its network configuration shows:

Command Prompt

```
C:\> ipconfig

Ethernet adapter Office LAN:
   IPv4 Address. . . . . . . . . : 192.168.10.45
   Subnet Mask . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . : 192.168.1.1
   DNS Servers . . . . . . . . . : 192.168.10.1
```

What is the most likely problem?

A The subnet mask is too large for an office network

B The default gateway is not in the PC's own subnet, so traffic for other networks cannot leave

C The DNS server address must be the same as the gateway

D The PC's IP address is a public address

144 Users in Office B cannot open the intranet site, but Office A users can. Tests from Office B give:

Test (from Office B)	Result
ping 10.0.0.5 (intranet server IP)	Replies, 12 ms
Open http://10.0.0.5 in a browser	Intranet page loads
nslookup intranet.college.example (using 10.20.0.53)	Request timed out
nslookup intranet.college.example 10.10.0.53 (Office A's DNS)	10.0.0.5

Where is the fault?

A The intranet web server is down

B Office B's DNS server (10.20.0.53) is not responding

C The intranet's DNS record is wrong

D The link between the offices is down

145 An order-history page became very slow after the orders table grew to 5 million rows. Monitoring shows:

Measurement	Value
Network latency to server	30 ms (normal)
Web server CPU	15%
Database server CPU	95%
Slow-query log	SELECT … FROM orders WHERE customer_id = ? → full table scan

What is the most likely root cause and fix?

A The network is too slow; upgrade bandwidth

B The web server needs more CPU

C No index on orders.customer_id; add an index

D Users have too many browser tabs open

Security, privacy and AI-governance decisions Questions 146–148

146 A college wants to use a machine-learning model to rank applicants for limited places. Which plan is most responsible?

A Remove protected characteristics such as gender from the inputs and assume the model is then fair

B Deploy it quickly and fix problems if complaints arrive

C Hide the model's use from applicants to avoid gaming

D Assess impact, test for bias, keep a human decision-maker, explain the process and offer appeals

147 A developer finds that the application has been writing users' plain-text passwords into debug logs for three weeks. Logs are stored on a shared server. Which response is best?

A Stop the logging, purge or restrict the logs, force password resets, review access and report the incident

B Encrypt all future logs, but leave the existing three weeks of logs unchanged for reference by developers and auditors

C Keep the logs, because they may be useful for debugging

D Delete the log lines quietly and say nothing

148 A team wants to send learner essays, which include names and personal stories, to an external AI API for automatic feedback. What should happen first?

A Check the provider's data terms and retention, remove identifiers, and confirm a lawful basis

B Send essays only at night

C Ask the AI API whether it is safe

D Send the full essays as they are, because the API is already widely used by many other colleges

Small project-design decisions under constraints

Questions 149–150

149 A learning app will be used on low-cost phones with limited storage and internet that is often unavailable for days. Learners must still complete lessons and quizzes, and tutors need their results. Which design best meets these constraints?

A A large app that installs every course video in high definition so nothing is downloaded later

B Learners email their answers to tutors after each quiz

C A web app that loads every page and video live from the server

D Download compact lesson packs, save quiz results on the phone, and sync them when online

150 Three developers have 10 working days each. 20% of their time must be kept for testing and fixes, so 24 developer-days are available for features.

Feature	Priority	Effort (developer-days)
F1 Login	Must	5
F2 Offline lesson download	Must	8
F3 Quiz with auto-marking	Must	6
F4 Progress dashboard	Should	4
F5 Chat with tutor	Could	7
F6 Leaderboard	Could	3

Which scope is the best plan?

A F1, F2, F3 and F6 (22 days)

B F1, F3, F4, F5 and F6 (25 days)

C F1, F2, F3 and F5 (26 days)

D F1, F2, F3 and F4 (23 days)

End of the test

Before you hand in your booklet, check that:

- your name and candidate ID are written on the cover page and on the answer sheet;
- you have chosen exactly one answer for every question from 1 to 150;
- any changed answers are clearly marked;
- you have not written anything that identifies other candidates.
- Return this booklet, the answer sheet and all rough paper to the invigilator.

> **Thank you**
>
> Your answers help BANFES.ai recommend the programme that fits you best. Results are normally shared within five working days.

mining Section.