Diploma Programme
Programme du diplôme
Programa del Diploma

Computer science
Higher level
Paper 2

4 May 2026

Zone A morning | **Zone B** morning | **Zone C** morning

1 hour 20 minutes

Instructions to students

- Do not open this examination paper until instructed to do so.
- Answer all of the questions from one of the options.
- The maximum mark for this examination paper is **[65 marks]**.

Option	Questions
Option A — Databases	1 – 4
Option B — Modelling and simulation	5 – 8
Option C — Web science	9 – 13
Option D — Object-oriented programming	14 – 18

357

A000

2226–4429

357

Blank page

A000

Option A — Databases

1. A software company employs programmers and managers.

- Each programmer works on a single project.
- Each project has multiple programmers.
- Each manager oversees multiple projects.
- Each project has one manager.

(a) Construct an entity-relationship diagram (ERD) that shows the relationships between programmer, manager and project. [2]

When a programmer changes source code, the changes are automatically written to a database and timestamped.

(b) Outline **one** benefit of using a database to track changes to source code. [2]

(c) Outline the role of timestamps in maintaining data consistency. [2]

Multiple programmers can work on the same source code concurrently (at the same time).

(d) Explain **one** way in which concurrency can be managed in the database when two programmers update the same line of code at the same time. [5]

(e) When data corruption occurs, databases need to be restored to a consistent state.

(i) Outline what is meant by a consistent database state. [2]

(ii) Describe **one** recovery method that can be used to restore a database. [3]

(Option A continues on the following page)

(Option A continued)

2. A software company has a manager who oversees several projects. Each project is developed for a specific client.

A record of a project is placed in a PROJECT table:

```
PROJECT (ManagerID, ClientID, ProjectID, ProjectName, StartDate,
EndDate, Priority)
```

(a) Suggest a primary key for the PROJECT table. [2]

The Priority field stores only two pieces of data: High or Low.

(b) Outline an appropriate data type for the Priority field. [2]

The PROJECT table is shown in **Figure 1**, the MANAGER table is shown in **Figure 2**, and the CLIENT table is shown in **Figure 3**.

Figure 1: The PROJECT table

357

ManagerID	ClientID	ProjectID	ProjectName	StartDate	EndDate	Priority
M123	C001	1	AI bot	2024-01-01	2025-12-31	High
M456	C002	2	Website	2024-02-01	2025-08-31	Low
M123	C003	3	Data analysis	2024-03-01	2025-11-30	Low
M789	C004	4	Cybersecurity	2024-04-01	2025-09-30	High

Figure 2: The MANAGER table

ManagerID	ManagerName	PhoneNumber	EmploymentDate
M123	Sehee Choi	0107930361	2023-04-12
M456	Errol Blake	0105940577	2022-01-29
M789	Faye Yang	0109839399	2023-12-18

A000

(Option A continues on the following page)

(Option A, question 2 continued)

Figure 3: The CLIENT table

ClientID	ClientName	ContactNumber	Industry
C001	Tech Innovators	0123456789	Technology
C002	Web Solutions	0987654321	Web development
C003	Data Insights	0234567890	Data analysis
C004	Secure Corp	0345678901	Cybersecurity

(c) Construct a query to find ClientName and ContactNumber for projects managed by Sehee Choi that are High priority. [5]

The database table (**Figure 4**) includes the professional development details of programmers.

Figure 4: The database table showing the professional development details of programmers

ID	Programmer	Level	Qualification	Company	CourseDate	Complete	Cost
1	Jana Jain	Senior	Oracle-certified, Java	CyberSafe	2024-01-29	Yes	2000
2	Kev McClure	Senior	Azure AI engineer	UniCode	2024-02-05	Yes	3000
3	Colin Sinclair	Junior	Certified data scientist	DataCamp	2024-03-11	No	2500
4	Dave Lees	Junior	CISSP certification	CyberSafe	2024-04-21	Yes	2200
1	Jana Jain	Senior	Azure AI engineer	UniCode	2024-05-28	No	3200
2	Kev McClure	Senior	Oracle-certified, Java	DataCamp	2024-06-01	No	2000

357

A000

(d) Construct the database in 3rd normal form (3NF) for the entities shown in **Figure 4**.

You should use the following notation:

`TABLE (Key, Field1, Field2,…)` [5]

(Option A continues on the following page)

(Option A continued)

3. A company is developing a database to track employees working remotely. This database is planned using conceptual schema and a data dictionary.

(a) Outline the role of conceptual schema. [2]

(b) Outline the purpose of a data dictionary. [2]

(c) Describe the role of a data definition language in implementing a data model. [3]

Remote working requires increased levels of data security.

(d) List **three** tasks that a database administrator carries out to ensure data security. [3]

The company is planning to allow external regulators to view the database.

(e) Explain the benefits of allowing external regulators to view the database. [5]

(Option A continues on the following page)

(Option A continued)

4. A company has implemented a multidimensional database model, which is beneficial for data mining.

(a) List **three** benefits of using a multidimensional database model for data mining. [3]

The extract, transform, load (ETL) process was used to extract data from a database, transform it and load it into a data warehouse.

(b) Define the term *data warehouse*. [1]

(c) Explain the need for data transforming in the ETL process. [5]

Common programming errors are input into a decision tree to predict possible programming errors.

(d) Describe how predictive modelling using decision trees can help predict programming errors. [4]

The company wants to ensure copyrighted code is not used in its projects. Deviation detection is applied to a historical dataset of code to establish baseline patterns.

(e) Describe how deviation detection could be used to identify copyrighted code. [2]

The company uses cluster analysis and classification to gain insights into coding practices and identify areas for improvement.

(f) Compare cluster analysis and classification techniques in this scenario. [5]

End of Option A

Option B — Modelling and simulation

5. The spreadsheet extract in **Figure 5** shows the scores for five students at City Walk School for two semesters (Sem 1 and Sem 2).

Figure 5: Spreadsheet extract showing five students' scores for two semesters

	A	B	C	D	E
1	**Student name**	**Sem 1**	**Sem 2**	**Final %**	**Student grade**
2	Elaine Anaya Khan	20	30	50.0	
3	Angel Chanchikova	32	54	87.5	
4	Isabella	26	45	72.5	
5	Sarah Naveneethan	32	38	67.5	
6	Scott Abou Khalil	16	24	40.0	

357

- Sem 1 scores (column B) are out of 40.
- Sem 2 scores (column C) are out of 60.
- Final (column D) combines the scores for both semesters, weighted 25 % for semester 1 (Sem 1) and 75 % for semester 2 (Sem 2).

(a) (i) State Elaine Anaya Khan's percentage for semester 1. [1]

(ii) Construct the formula to calculate the percentage for cell D2. [2]

City Walk School reports students' grades from lowest to highest (E to A), inclusively:

- A score between 35 and 46, inclusive, returns an E grade.
- A score between 47 and 59, inclusive, returns a D grade.
- A score between 60 and 69, inclusive, returns a C grade.
- A score between 69 and 84, inclusive, returns a B grade.
- A score of 85 or more returns an A grade.

(Option B continues on the following page)

A000

(Option B, question 5 continued)

The data for these scores are stored in columns H and I (see **Figure 6**).

Figure 6

	A	...	D	E	...	H	I
1	**Student name**		**Final**	**Student grade**		**School score**	**Grade**
2	Elaine Anaya Khan		50.0			35	E
3	Angel Chanchikova		87.5			47	D
4	Isabella		72.5			60	C
5	Sarah Naveneethan		67.5			70	B
6	Scott Abou Khalil		40.0			85	A

(b) Construct a formula to automatically add Elaine Anaya Khan's grade (shown in column I) to cell E2. [3]

The formula `=FIND(A2, " ")` has been added to cell F2 and replicated down the rest of the column (see **Figure 7**).

Figure 7

	A	...	F
1	**Student name**		**FIND**
2	Elaine Anaya Khan		7
3	Angel Chanchikova		6
4	Isabella		#VALUE!
5	Sarah Naveneethan		6
6	Scott Abou Khalil		6

Row 4 produces an error.

(c) Outline why cell F4 produced an error. [2]

(Option B continues on page 11)

357

A000

357

Blank page

A000

(Option B, question 5 continued)

The function `=ISNUMBER(value)` returns `TRUE` if the value is a number and `FALSE` if the value is not a number.

For example, the value in F2 should be 7 because 7 is an integer. The value in F4 should be FALSE because #VALUE! is not an integer.

(d) Construct a formula for cell F4 as described. [3]

To fix the error in row 4, Isabella's last name has been added. Two additional columns have been inserted: Last name and First name (see **Figure 8**).

Figure 8

	A	B	C	D
1	**Student name**	**Last name**	**First name**	**Sem 1**
2	Elaine Anaya Khan	Khan	Elaine	20
3	Angel Chanchikova	Chanchikova	Angel	32
4	Isabella Hodroge	Hodroge	Isabella	26
5	Sarah Naveneethan	Naveneethan	Sarah	32
6	Scott Abou Khalil	Khalil	Scott	16

The first name in cell C2 has been extracted from the full name in cell A2 using the MID function and FIND function:

```
=MID(A2,1,FIND(" ",A2)-1)
```

In column B, last names have been extracted from the student names in column A. Any middle name has been ignored.

(e) Explain how a last name could be extracted while ignoring a middle name. [4]

(Option B continues on the following page)

(Option B continued)

6. Schools in the region are required to upload student names and their scores for each subject to the portal of the Ministry of Education (a governmental organization that oversees standards for examination scores).

City Walk School's grade boundaries* are lower than the Ministry of Education's grade boundaries, as shown in **Figure 9**.

Figure 9: Grade boundaries for City Walk School and the Ministry of Education

	H	I	J	K
1	**School score**	**Grade**	**Ministry score**	**Grade**
2	35–46	E	40–51	E
3	47–59	D	52–65	D
4	60–69	C	66–75	C
5	70–84	B	76–90	B
6	85–100	A	91–100	A

357

Consider the formula:

$$KS = \left(\frac{SSS - MinSS}{MaxSS - MinSS} \right) \times (91 - 40) + 40$$

where:

- *SSS* is the student's school score.
- *MinSS* is 35, the minimum score in the school's data range.
- *MaxSS* is 85, the minimum score for an A grade in the school's data range.
- 40 is the minimum score in the Ministry of Education's data range.
- 91 is the minimum score for an A grade in the Ministry of Education's data range.

A000 This formula is used to scale data from one range (e.g. school score: 35–85) to a different range (Ministry score: 40–91).

(a) Calculate *KS* to one decimal place, where *SSS* = 60.

You must show your working. [2]

* grade boundaries: the range of marks required to achieve a specific grade

(Option B continues on the following page)

(Option B, question 6 continued)

The spreadsheet extract shown in **Figure 9** has been imported into a program.

- An array, STUDENTS, stores student's last names.
- An array, SCORES, stores student's school scores rounded to the nearest integer.
- An array, MINISTRY, consists of five integers of 0.

STUDENTS = [Khan, Chanchikova, Hodroge, Naveneethan, Khalil]
SCORES = [50, 88, 73, 68, 40]
MINISTRY = [0, 0, 0, 0, 0]

A pseudocode algorithm should take each value in the SCORES array and apply the formula to calculate the Ministry score. The result of this calculation should be rounded to the nearest integer and stored in the MINISTRY array.

(b) Construct an algorithm in pseudocode as described. [3]

When schools upload student names and scores, the portal only allows integers between 40 and 100 to be entered. The Ministry of Education runs several automated checks on the data.

(c) Describe **one** other automated check the Ministry of Education might use to ensure the data is accurate. [3]

For a student to achieve a grade A, they must score between 91 and 100.

A pseudocode algorithm should count the number of grade A students and store the result as a percentage of the total number of students.

(d) Construct an algorithm in pseudocode as described. [4]

(Option B continues on the following page)

(Option B continued)

7. The Ministry of Education is developing a real-time simulation model to monitor and analyse the impact of student attendance on academic performance across all schools in the region.

(a) Outline what is meant by real-time simulation. [2]

Student attendance rate is a variable used in the simulation.

(b) Identify **three** other variables that would be required to model this simulation effectively. [3]

(c) Outline **two** categories of hardware needed for this simulation. [4]

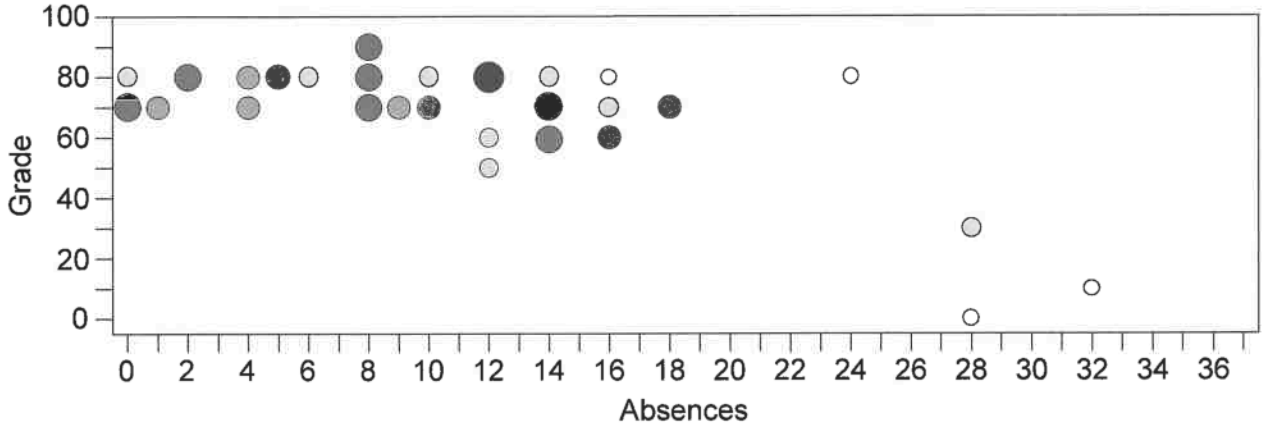
The Ministry of Education decided to use City Walk School as a test case to assess the simulation model's accuracy in predicting student scores based on attendance.

(d) Discuss **one** factor that could be used to judge the effectiveness of this test case for assessing the accuracy of the simulation model. [5]

After completing the test case, the Ministry of Education applied the simulation to all schools in the region. A heat map visualization was used to show the relationship between absences and grades (see **Figure 10**).

357

Figure 10: Heat map visualization showing the relationship between absences and grades in schools in the region



A000

(e) Outline **two** factors that would affect the memory needs of a 2D visualization such as the heat map shown in **Figure 10**. [4]

(Option B continues on the following page)

(Option B continued)

8. The Ministry of Education is using a genetic algorithm to determine the most suitable locations for new schools.

An initial population of random site locations is added to a population pool, and the algorithm runs iteratively until a stopping condition is reached.

(a) Outline **two** steps, **other than** the ones already stated, that must be taken for the genetic algorithm to find the most suitable locations for new schools. [4]

The Ministry of Education is implementing a chatbot on its website to provide guidance for schools.

(b) (i) Outline **one** advantage of using a chatbot. [2]

(ii) Outline **one** disadvantage of using a chatbot. [2]

The Ministry of Education plans to use a neural network for natural language processing to analyse large volumes of handwritten student essays.

(c) Identify **two** key structures of natural language. [2]

(d) Evaluate the effectiveness of natural language processing for analysing student essays. [4]

The Ministry of Education is developing an educational tool designed to enhance students' language skills by incorporating cognitive research on how humans learn languages.

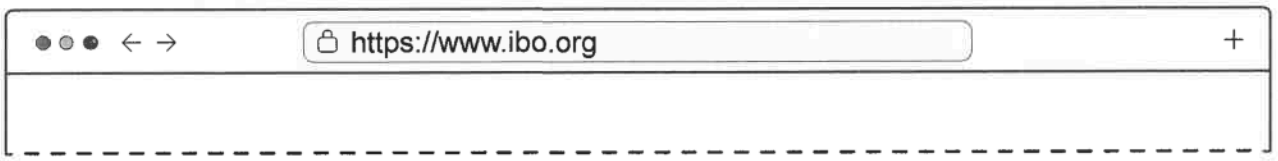
(e) Explain **two** principles of language learning that should be applied in this educational tool. [6]

End of Option B

Option C — Web science

9. Callum opens a web browser and enters the universal resource locator (URL) of the International Baccalaureate Organization (see **Figure 11**).

Figure 11: Web browser showing the URL of the International Baccalaureate Organization



(a) State **two** characteristics of a URL. [2]

(b) Outline **two** functions of a web browser. [2]

(c) Hypertext transfer protocol secure (HTTPS) is an example of a protocol. Explain why protocols are important. [3]

357

(d) Identify **two** characteristics of extensible mark-up language (XML). [2]

A website contains a page that lists the students in a class. The page uses two files to develop the list as shown.

Class.xml

```
<?xml-stylesheet type="text/xsl" href="class_style.xsl"?>
<class>
    <student>
        <firstname>John</firstname>
        <surname>Doe</surname>
        <classname>Mathematics</classname>
    </student>
    <student>
        <firstname>Jane</firstname>
        <surname>Smith</surname>
        <classname>Physics</classname>
    </student>
    <student>
...
</class>
```

A000

(Option C continues on the following page)

(Option C, question 9 continued)

Class_style.xsl

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/
Transform">
<xsl:template match="/">
    <html>
    <body>
        <h1>Class Members</h1>
        <table>
            <tr>
                <th>First Name</th>
                <th>Surname</th>
                <th>Class</th>
            </tr>
            <xsl:for-each select="class/student">
            <tr>
                <td><xsl:value-of select="firstname"/></td>
                <td><xsl:value-of select="surname"/></td>
                <td><xsl:value-of select="classname"/></td>
            </tr>
            </xsl:for-each>
        </table>
    </body>
    </html>
</xsl:template>
</xsl:stylesheet>
```

(e) With reference to Class.xml and Class_style.xsl, describe how a page connects to the underlying data source. [2]

(f) Identify **three** characteristics of transmission control protocol (TCP). [3]

10. It is estimated that the deep web is 500 times larger than the surface web.

(a) Outline **one** difference between the deep web and the surface web. [2]

(b) Define the term *web crawler*. [1]

(c) Outline the web crawling process. [3]

(d) Describe **two** advantages of parallel web crawling. [4]

Developers attempt to have their site rank higher in the search engine result.

(e) Evaluate **two** white hat techniques that may be used in search engine optimization. [5]

(Option C continues on the following page)

(Option C continued)

11. (a) Distinguish between ubiquitous computing and mobile computing. [4]

Violet is a photographer who has profiles on multiple social media platforms.

The social media platform that Violet uses is a community of independent and personal sites connected by open standards such as ActivityPub. It is described as a distributed social network.

(b) Describe how open standards support interoperability. [2]

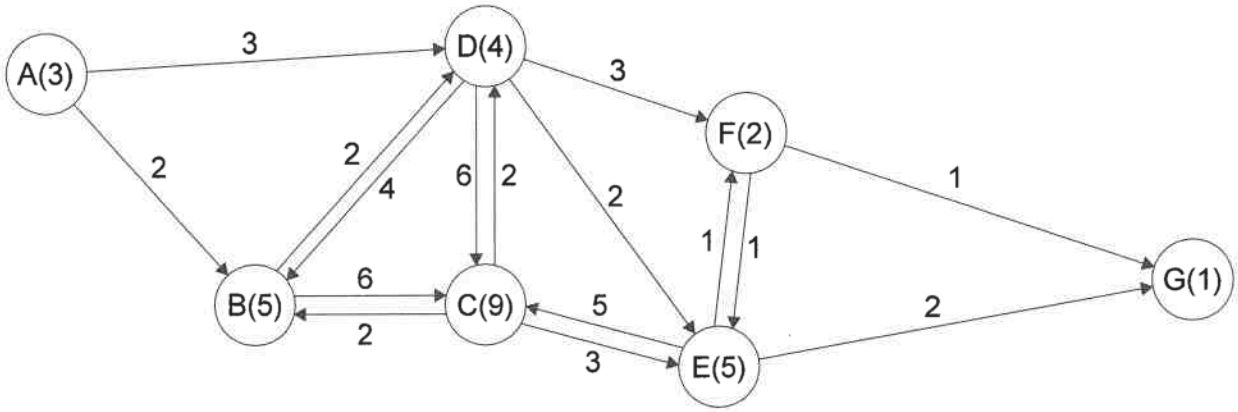
(c) Explain how distributed social networks support decentralization of the web. [6]

(d) Discuss the challenges faced by distributed social networks with reference to intellectual property. [4]

12. The subgraph in **Figure 12** represents a portion of the web with weighted nodes and edges. The weight in each node represents the activity level within that node.

357

Figure 12: Subgraph representing a portion of the web



A000

(a) Outline why **Figure 12** is best described as a weighted and directed graph. [2]

(b) Explain why some nodes in **Figure 12** are described as weakly connected and some as strongly connected. [4]

(c) Explain which **three** nodes in **Figure 12** would rank highest using the PageRank algorithm. [4]

(Option C continues on the following page)

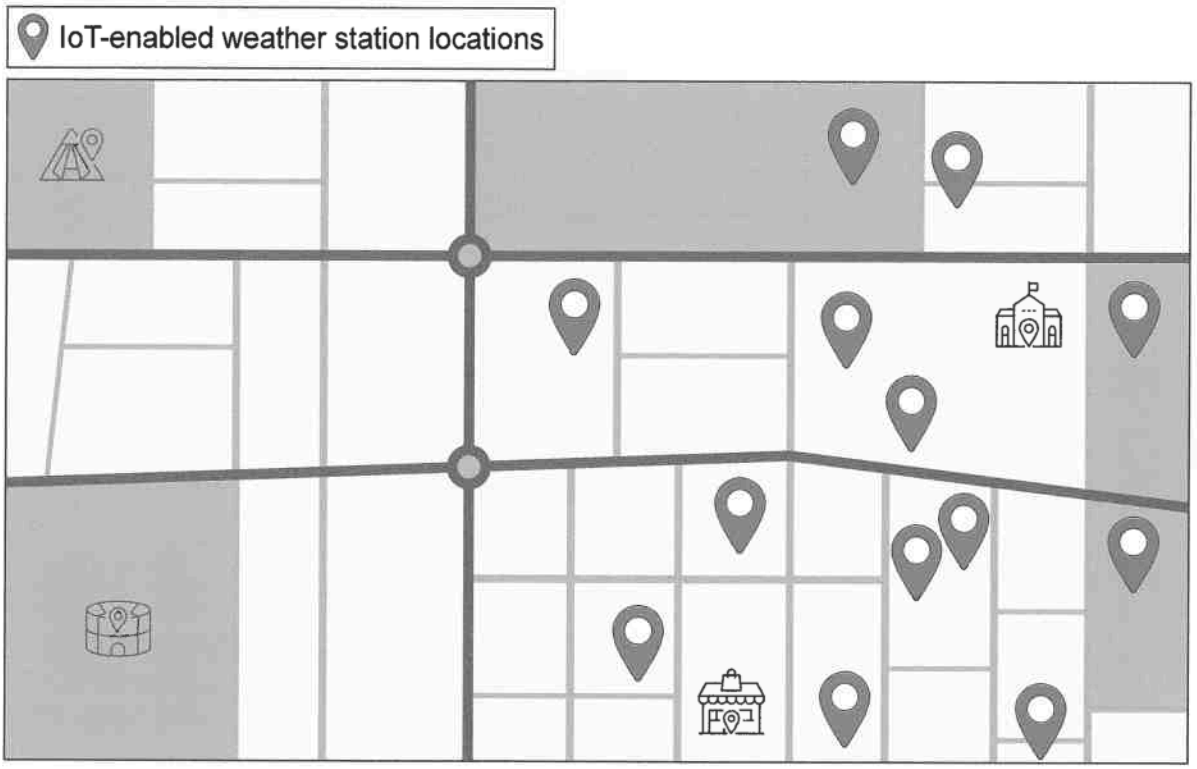
(Option C continued)

13. An Internet of Things (IoT)-enabled weather station uses a network of devices and sensors to collect, analyse and transmit weather data in real time.

This represents ambient intelligence.

Figure 13 shows the distribution of IoT-enabled weather stations in a town, with the 13 tear drop markers representing the devices.

Figure 13: Map showing the distribution of IoT-enabled weather stations in a town



(a) Describe **one** difference between ambient intelligence and collective intelligence. [2]

(b) Discuss **one** benefit **and one** limitation of IoT-enabled weather stations providing accurate weather data. [6]

The IoT-enabled weather stations in people's homes typically use meta-tags to describe and categorize data. This metadata is not considered an ontology.

(c) Outline why this metadata is not considered an ontology. [2]

End of Option C

Option D — Object-oriented programming

14. A car rental company has several locations around a country. Each location has many cars that are rented to customers throughout the year. The company makes use of object-oriented programming (OOP) to manage the rentals.

The `Rental` class is shown.

```
public class Rental
{
    private int customerID;
    private boolean priority;
    private int carID;
    private double costPerDay;
    private RentDate startDate;
    private RentDate endDate;

    public Rental(int customerID, boolean priority, int carID, double
costPerDay, RentDate startDate, RentDate endDate)
    {
        this.customerID = customerID;
        this.priority = priority;
        this.carID = carID;
        this.costPerDay = costPerDay;
        this.startDate = startDate;
        this.endDate = endDate;
    }

    public Rental (int customerID, int carID, double costPerDay,
RentDate startDate, RentDate endDate)
    {
        this.customerID = customerID;
        this.priority = false;
        this.carID = carID;
        this.costPerDay = costPerDay;
        this.startDate = startDate;
        this.endDate = endDate;
    }

    public int getCustomerID() { return customerID; }
    public boolean getPriority() { return priority; }
    public int getCarID() { return carID; }
    public double getCostPerDay() { return costPerDay; }
    public RentDate getStartDate() { return startDate; }
    public RentDate getEndDate() { return endDate; }

    public int getDays()
    {
        // implementation not shown
        // returns the number of days between the start date
        // and the end date of the rental
    }
```

357

A000

(Option D continues on the following page)

(Option D, question 14 continued)

```
    public int compareTo(RentDate thisDate)
    {
        // implementation not shown
        // returns -1 if this date is earlier
        // returns 0 if the dates are the same
        // returns 1 if this date is later
    }

    public double getCost()
    {
        // code missing
    }
    public String toString()
    {
        returnCustomer ID" + customerID + ", Priority Status: " +
priority + ", Car Rented: " + carID + ", cost per day: " + costPerDay;
    }
}
```

Each time a car is rented, an instance of the `Rental` class is created.

(a) Describe, using the `Rental` class as an example, the difference between a class and an instance of a class. [3]

The `Rental` class has two constructor methods with different parameters.

(b) (i) Outline why having multiple constructors in the `Rental` class is not a problem when creating a new `Rental` object. [3]

(ii) State the object-oriented programming (OOP) concept that allows two methods in the same class to share the same name but have different parameters. [1]

The `Rental` class makes use of a class, `RentDate`, to store dates.

(c) Outline **one** benefit of creating the `RentDate` class to store the dates of car rentals. [2]

(d) Outline the purpose of the `toString()` method in the `Rental` class. [2]

The purpose of the `getCost()` method is to return the total cost of a car rental. The total cost of the rental is the number of days multiplied by the cost per day.

(e) Construct the code for the `getCost()` method. [4]

(Option D continues on the following page)

(Option D continued)

15. The `RentalShop` class stores information about the shop (location) to which the rental cars belong.

The `RentalShop` class is shown.

```
public class RentalShop {

    private String location;
    private Rental theRentals [];
    private int noOfRentals;

    public RentalShop(String location) {
        this.location = location;
        this.noOfRentals = 0;
        this.theRentals = new Rental[500];
    }
    public String getLocation()     { return location; }
    public Rental getRental(int x) { return theRentals[x]; }
    public int getNoOfRentals()     { return noOfRentals; }

    protected void addRental(Rental newRental) {
        theRentals[noOfRentals] = newRental;
        noOfRentals = noOfRentals + 1;
    }

    protected Rental [] getTodaysRentals(RentDate today){
        // code missing
    }
}
```

The car rental company would like to open a new shop (location) in Beach Side.

(a) Construct the code required to create this instance of the `RentalShop` class. [3]

(b) Describe the use of the modifier `protected`, with reference to methods in the `RentalShop` class. [2]

At the start of each day, the shop needs to produce a listing of all the cars that are being rented out that day.

(c) Construct the method `getTodaysRentals(RentDate today)`, which will return an array of all the rentals starting on that day.

You can use any previously constructed methods. [6]

The car rental company would like to store information about customers in a separate class.

(d) Outline **two** changes that would need to be made to the existing classes to accommodate this. [4]

(Option D continues on the following page)

(Option D continued)

16. The full solution is being tested using the following code:

```
RentalShop[] shops = new RentalShop[3];

shops[0] = new RentalShop("Silverlake");
shops[1] = new RentalShop("Fjord View");
shops[2] = new RentalShop("Sea View");

shops[0].addRental(new Rental(2920393,true, 2934, 54.0, new
RentDate(2026, 2, 12), new RentDate(2026, 2, 22)));

shops[0].addRental(new Rental(2929202, 2944, 64.0, new
RentDate(2026, 2, 14), new RentDate(2026, 2, 23)));

shops[2].addRental(new Rental(2920393,true, 334, 52.0, new
RentDate(2026, 2, 12), new RentDate(2026, 4, 20)));

shops[2].addRental(new Rental(2910222,true, 5645, 65.0, new
RentDate(2026, 2, 13), new RentDate(2026, 4, 20)));
```

(a) State the outcome from the following code:

(i) `IBIO.output(shops[1].getLocation());` [1]

(ii) `IBIO.output(shops[0].getRental(0).getCustomerID());` [1]

(iii) `IBIO.output(shops[2].getRental(1).getEndDate());` [1]

A method, `getTotalIncome()`, is needed to find the total costs of all rentals from all cars in all shops.

(b) Outline **one** ethical issue programmers need consider when developing code for financial transactions. [2]

(c) Construct the code for the method `getTotalIncome()`.

You can use any previously constructed methods. [5]

The `Rental` class is dependent on the `RentDate` class.

(d) Explain **one** reason why the programmers would want to reduce dependencies. [3]

The programmers have worked in a team to develop this solution.

(e) Describe **one** advantage of working as a team. [2]

(Option D continues on the following page)

(Option D continued)

17. The car rental company wants to create a linked list of `Customer` objects. The `Customer` class, which stores information about each customer, is partially outlined as shown.

```
public class Customer
{
    private int customerID;
    private String customerName;
    private String preferredShop;

    public String getPreferredShop()
    {
        return preferredShop;
    }
    public void setPreferredShop(String shop)
    {
        preferredShop = shop;
    }
    // remaining accessor and mutator methods implemented but not shown
}
```

357

One of the shops has closed. Any customer who prefers this shop requires their `preferredShop` updated.

The method `changePreferredShop()` will change the preferred shop of all affected customers to the new shop given in the parameter `newShop`. The method should return the number of customers that have been changed.

(a) Construct the method `public int changePreferredShop(LinkedList customers, String preferredShop, String newShop)`. [6]

The programmers have used a library of objects rather than developing a custom linked list.

(b) Outline **two** benefits of using a library when developing code. [4]

(Option D continues on the following page)

A000

(Option D continued)

18. A programmer has produced the following recursive algorithm:

```
int X (int Y){
    if (Y <= 1){
        return Y;
    }
    else{
        return Y + X(Y-1);
    }
}
```

(a) Outline **one** benefit of recursion. [2]

(b) Copy and trace the recursive algorithm when called with the following statement.

```
X(5);
```

[4]

Y	Y <= 1	Return call	Return value

(c) Identify why calling the algorithm with the following statement would cause an error.

```
X(-3);
```

[1]

(d) Explain **one** action a programmer could take to improve the readability of code. [3]

End of Option D