



امتحان دبلوم التعليم العام للمدارس الخاصة (ثنائية اللغة)

الفصل الدراسي الأول - الدور الأول

للعام الدراسي ١٤٤٧/١٤٤٦ هـ - ٢٠٢٤ / ٢٠٢٥ م

تنبيه:
- المادة: تقنية المعلومات والاتصالات.
- الأسئلة في (١١) صفحة.
- زمن الإجابة: ثلاث ساعات.
- الإجابة في الورقة نفسها.

تعليمات مهمة:

- يجب الحضور إلى قاعة الامتحان قبل عشر دقائق على الأقل من بدء زمن الامتحان.
- يجب إحضار أصل ما يثبت الهوية وإبرازها للعاملين بالامتحانات.
- يجب الالتزام بالزي (الدشداشة البيضاء والمصر أو الكمة للذكور) والزي المدرسي للطالبات ، ويستثنى من ذلك الدارسون من غير العمانيين بشرط الالتزام بالذوق العام، ويمنع على جميع المتقدمات ارتداء النقاب داخل المركز وقاعات الامتحان.
- يحظر على الممتحنين اصطحاب الهواتف النقالة وأجهزة النداء الآلي وآلات التصوير والحواسيب الشخصية والساعات الرقمية الذكية والآلات الحاسبة ذات الصفة التخزينية والمجلات والصحف والكتب الدراسية والدفاتر والمذكرات والحقائب اليدوية والآلات الحادة أو الأسلحة أياً كان نوعها وأي شيء له علاقة بالامتحان.
- يجب على الممتحن الامتثال لإجراءات التفتيش داخل المركز طوال أيام الامتحان.
- يجب على الممتحن التأكد من استلام دفتر امتحانه، مغلفاً بغلاف بلاستيكي شفاف وغير ممزق ، وهو مسؤول عنه حتى يسلمه لمراقبي اللجنة بعد الانتهاء من الإجابة.
- يجب الالتزام بضوابط إدارة امتحانات دبلوم التعليم العام وما في مستواه وأية مخالفة لهذه الضوابط تعرضك للتدابير والإجراءات والعقوبات المنصوص عليها بالقرار الوزاري رقم ٥٨٨ / ٢٠١٥.
- يقوم المتقدم بالإجابة عن أسئلة الامتحان المقالية بقلم الحبر (الأزرق أو الأسود).
- يقوم المتقدم بالإجابة عن أسئلة الاختيار من متعدد بتظليل الشكل (○) وفق النموذج الآتي:

س – عاصمة سلطنة عمان هي:

○ القاهرة ○ الدوحة

● مسقط ○ أبوظبي

ملاحظة: يتم تظليل الشكل (●) باستخدام القلم الرصاص وعند الخطأ، امسح بعناية لإجراء التغيير.

صحيح ● **غير صحيح** ⊖ ◉ ◔ ⊗ ✓

مُسَوَّدَة، لا يتم تصحيحها

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Question One: Multiple Choice (Items 1 – 8) (8 marks)

Shade in the bubble (○) next to the correct answer for each of the following items.

1. An example of cryptocurrency is:

- ○ PayPal
- ○ LiteCoin
- ○ Google Pay
- ○ Credit Cards

2. The stage of data mining that involves checking the integrity, accuracy and the properties of data to make sure it is viable, is:

- ○ Data understanding
- ○ Data preparation
- ○ Data modeling
- ○ Evaluation

3. A student is intentionally posting false information about an upcoming event in the school's online forum, causing confusion among his classmates.

What action should the forum's moderator take?

- ○ Ban the student from the forum without any explanation or clarification.
- ○ Ignore the post and wait until the students realize the information is false.
- ○ Remove the post and report the student to the principal for further action.
- ○ Delete the post, block the student and issue a public clarification to correct the false information.

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Question One continued

4. A programmer wants to learn a new programming language. He prefers smaller, focused groups to collaborate and stay motivated.

Which online learning system would help him achieve this goal?

- ▢ Massive Open online courses
- ▢ Computer based training
- ▢ Networked learning
- ▢ Online tutorials

5. The simulation technology is usually used in medicine to:

- ▢ Schedule appointments and manage patient records.
- ▢ Enter patient data into hospital management systems.
- ▢ Prescribe medications without physician involvement.
- ▢ Train doctors and nurses in performing specific surgeries.

6. A student wants to display the message "Welcome to the page" when a user visits the homepage of his personal website.

Which JavaScript code will correctly display this message?

- ▢ document.writemessage("Welcome to the page");
- ▢ document.writestring("Welcome to the page");
- ▢ document.writeline("Welcome to the page");
- ▢ document.write("Welcome to the page");

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Question One continued

7. The sentence that describes the options that appear in an alert and a confirm box in JavaScript is:

- ☐ An alert box provides only an "OK" button, while a confirm box provides "OK" and "Cancel" buttons.
- ☐ An alert box provides "OK" and "Cancel" buttons, while a confirm box provides only an "OK" button.
- ☐ An alert box provides only "Cancel" button, while a confirm box provides only an "OK" button.
- ☐ Both alert and confirm boxes provide "OK" and "Cancel" buttons.

8. A web developer is creating a login form. If the user enters an invalid email address, the developer wants to show an alert with the message "Error: Invalid input"

Which of the following is the correct JavaScript syntax to display this alert when the email validation fails?

- ☐ show. alertBox("Error: Invalid input");
- ☐ display.alert("Error: Invalid input");
- ☐ show. alert("Error: Invalid input");
- ☐ alert("Error: Invalid input");

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Question Two: Extended Response (Items 9–15) (32 Marks)

Answer ALL questions in the space provided.

9. Identify whether each of the following features relate to **virtual currency** or **cryptocurrency**.

The feature	The type of currency (Virtual currency or cryptocurrency)
a. It allows users to remain anonymous, as transactions do not require personal identification, unlike traditional banking.	_____ [1]
b. It is typically a decentralized system that only exists within a specific unreal environment, such as a game, and cannot be traded elsewhere.	_____ [1]
c. It is decentralized and can fluctuate significantly in value.	_____ [1]
d. It is often built on blockchain technology to ensure transparency and security.	_____ [1]

10. Data mining involves analyzing large datasets to identify patterns and extract useful information across various sectors.

a. Describe **ONE** real world application of data mining in the **healthcare sector**.

_____

_____ [1]

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Question Two continued

b. Write **TWO** advantages of data mining for **organizations**, and discuss how each advantage positively affects the organization.

Make sure you support the discussion of each advantage with ONE illustrative example.

The advantages	The discussion

[4]

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Question Two continued

11.There are several types of social networking. One of these types is e-mail.

a. Identify **THREE** key components of an e-mail.

1. _____

2. _____

3. _____

[3]

b. Provide **TWO** real-world examples on how e-mail could be used by businesses and organizations to facilitate **communication with customers**.

1. _____

_____

2. _____

_____

[2]

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Question Two continued

12. Using the following grid, select the appropriate technology-enhanced learning platform for each of the situations below:

Massive open online courses	Online tutorials	Video Conferencing	Computer-based training

a. A company needs to train employees on software skills using a self-paced program that provides automatic marking of quizzes.

_____ [1]

b. A university professor wants to deliver a live lecture to his class students across multiple locations, allowing real-time interaction and participation.

_____ [1]

c. A learner wishes to enroll in a free, open-access course offered by top universities, which includes recorded video lectures and peer-reviewed assignments.

_____ [1]

d. A student wants to follow a structured video lesson that explains specific topics step-by-step, but without the need for live interaction or formal enrollment.

_____ [1]

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Question Two continued

13. The table below outlines one advantage of using robotics in manufacturing. Complete the table by identifying another advantage and discuss how both advantages positively affect the manufacturing process.

Support the discussion of each advantage with ONE illustrative example.

The advantages	The discussion
Increased efficiency and precision	

[4]

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Question Two continued

14. Read the following JavaScript code carefully:

```
<script>
        document.getelementbyId ("header").innerHTML = "Welcome to the website";
        var userName = _____ ("Please enter your name:");
        var isCorrect = _____ ("You entered " + userName + ". Is this correct?");

      If (isCorrect) {
        document.getelementbyId ("header").innerHTML = "Welcome, " + userName + "!";
      } else {
        document.getelementbyId (header").innerHTML = "Please reload the page and try again.";
      }
</script>
```

a. The syntax of the underlined method is incorrect. Rewrite it correctly.

_____ [1]

b. Describe the purpose of the method you have corrected in a.

_____

_____ [1]

c. Complete the **second** and **third** lines of the given code, so it displays the correct pop-up boxes to the user.

var userName = _____ ("Please enter your name:");

var isCorrect = _____ ("You entered " + userName + ". Is this correct?");

[2]

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Question Two continued

15. Read the following scenario carefully then answer all questions in the space provided:

Bridging Classrooms: Al-Aamal High's Hybrid Learning Journey

At AL-Aamal High School, teachers have increasingly incorporated video conferencing technology into their teaching practices as part of a hybrid learning model. In this model, some students attend lessons in the classroom, while others join remotely from home using platforms like Zoom and Microsoft Teams. Teachers can share screens, present multimedia content, and facilitate group discussions through breakout rooms.

The quality of lessons conducted via video conferencing can be influenced by several factors. These include internet connectivity, the lack of face-to-face interaction, the challenge of managing a class with both in-person and remote students, and the technical difficulties with the video conferencing platform.

The school's administration believes that using technology in the classroom enhances the learning process. They note that digital resources and collaborative tools allow students to access a wider range of learning materials, it makes education more interactive and adaptable to different learning needs and increase students' engagement.

a. Identify **TWO** essential technical requirements for conducting a video conferencing session.

[1]

b. Analyze **TWO** factors that affect the quality of lessons held by Al-Aamal school teachers via video conferencing and their impact on teaching and learning.

[2]

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Question Two continued

c. Analyze **TWO** benefits and their positive impact of using technology in the learning process, with reference to the experience at Al-Aamal High School.

The first benefit:

The second benefit:

[3]

[End of Examination]

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Marking Guide for General Education Diploma for Private Schools (Bilingual)

Semester One – First Session

Academic Year: 2024/2025

Subject: ICT

Note: There are 12 pages in this guide

First: Answers for the Multiple-Choice Items (8 Marks):

N.	Answer	Mark	Learning Outcome	Assessment Objective
1	B LiteCoin	1	Identify examples of cryptocurrency such as Bitcoin and Litecoin.	AO1
2	A Data understanding	1	Identify and describe the stages of data mining.	AO1
3	D Delete the post, block the student and issue a public clarification to correct the false information.	1	Explain the role of moderators in forums.	AO2
4	C Networked learning	1	Explain the aims of networked learning.	AO2
5	D Train doctors and nurses in performing specific surgical procedures	1	Describe the use of simulation to train doctors and nurses.	AO1
6	D document.write("Welcome to the page");	1	Write the syntax of document.write code and apply it to output data to a web page.	AO2
7	A An alert box provides only an "OK" button, while a confirm box provides "OK" and "Cancel" buttons.	1	Analyze the differences between alert, confirm, and prompt boxes.	AO1
8	D alert("Error: Invalid input");	1	Write the syntax for displaying an alert box.	AO2

Second: Answers for the Extended Response Items (32 Marks):

General Notes

- There may be different ways of answering questions, but a basic requirement for all answers is that they are RELEVANT.
- If the answer is clearly not relevant, and the student has clearly made no attempt to answer the question that was set, NO marks should be awarded. However, if the student has genuinely attempted the answer, but his answer is only partly relevant, then a reduced mark (not zero) should be awarded.

N.	Answer	Mark
9 a,b,c,d	Answer: **The feature** / **The type of currency (Virtual currency or cryptocurrency?)** a. It allows users to remain anonymous, as transactions do not require personal identification, unlike traditional banking. — **Cryptocurrency** [1] b. It is typically a decentralized system that only exists within a specific unreal environment, such as a game, and cannot be traded elsewhere. — **Virtual Currency** [1] c. It is decentralized and can fluctuate significantly in value. — **Cryptocurrency** [1] d. It is often built on block chain technology to ensure transparency and security. — **Cryptocurrency** [1]	4

Assessment Objective	AO1
Page Reference	266-268
Learning Outcome	Differentiate between virtual currency and other types of digital currency. Define cryptocurrency and identify examples such as Bitcoin and Litecoin. Analyze the advantages and disadvantages of using cryptocurrencies compared to traditional financial systems

A sample Answer:
One real-world application of data mining in the healthcare sector is predicting patient volumes. By analyzing historical patient data and identifying patterns, healthcare providers can forecast the number of patients that may visit hospitals or clinics during certain times of the year.

Marking guidance:
*0.5 mark for the identification and 0.5 mark for the description. (0.5*2=1 mark).*

Another acceptable answer could be:

- Another real-world application of data mining in healthcare is disease prediction and diagnosis. By analyzing patient records, genetic data, and lifestyle information, data mining algorithms can help identify patterns associated with certain diseases, such as diabetes or heart disease.

The provided answers are just sample answers. All other answers should be marked based on the following rubric:

Mark	**Criteria:** Correctly identifies and describe a real-world application of data mining in the healthcare sector. **AO2 (Application)**
1	An Application is clearly identified and well described.
0.5	An Application is identified, but the description or explanation is unclear or incomplete.
0	No relevant application is identified or described.

10.a

Assessment Objective	AO2
Page Reference	271
Learning Outcome	Discuss the diverse application of data mining in different sectors including healthcare.

1

10.b

A sample Answer:

The Advantages	The Discussion
Allows organizations to make strategic decisions	Organizations can analyze data to predict market trends, helping them make decisions that can increase revenue. For example, a retail company could use data mining to analyze purchasing trends, enabling them to stock products that are more likely to sell, thus improving sales and profits.
Helps organizations understand their customers	By analyzing customer data, businesses can create products that better meet customer needs. For instance, an online retailer might use data mining to identify popular product categories, allowing them to develop targeted marketing campaigns and enhance customer satisfaction.

Marking Guidance:

*1 mark for identifying two correct advantages of using data mining in organizations (0.5 for each (0.5*2=1 mark) (AO1).*
*2 marks for the discussion: how these two advantages positively affect the organizations. (1 for the discussion of each advantage (1*2=2 marks)) (AO3).*
*1 mark for the illustrative examples that support the discussion (0.5 for each illustrative example, 0.5*2=1 mark) (AO2).*

Other correct advantages may be:

- **Allows important institutions to predict future crises:**
  Data mining helps organizations, especially governments and financial institutions, predict social and economic trends. By analyzing historical data, these institutions can foresee potential crises, such as recessions or political instability. For example, a government could use data mining to analyze economic data and identify patterns that might signal an upcoming recession. This early warning allows them to devise strategies to mitigate the potential impact, such as adjusting fiscal policies or increasing spending in critical areas.
- **Allows businesses to save costs:**
  Data mining can also help businesses identify inefficiencies and streamline operations, leading to significant cost savings. For instance, a manufacturing company might use data mining to analyze its production process and discover bottlenecks that slow down operations. By addressing these inefficiencies, the company can reduce downtime and avoid unnecessary expenses, ultimately improving productivity and lowering operational costs.

4

Any other answers should be marked based on the following rubric:

Mark	Criteria: Identifying two correct advantages of data mining for organizations **AO1 (Remembering and Understanding))**	Mark	**Criteria:** Supporting the discussion with an illustrative example. **AO2 (Application)**	Mark	**Criteria:** Correctly discussing how each advantage positively affects the organization. **AO3 (Reasoning)**
1	Two correct advantages are clearly identified.	1	Both advantages are clearly supported with relevant illustrative examples.	2	Clear and well-reasoned discussion on how both advantages positively affect the organization.
0.5	One advantage only is correctly identified.	0.5	One advantage is supported with a relevant illustrative example, or both advantages are supported with examples but the provided examples lack clarity or relevance.	1	Discussion provided for one advantage only, or the discussion of the two advantages lacks depth and does not clearly explain the positive impact.
0	No correct advantages identified or irrelevant answer.	0	No examples are provided, or the examples given are irrelevant or incorrect.	0	No discussion or irrelevant discussion.

Assessment Objective	AO1,AO2, AO3
Page Reference	271-272
Learning Outcome	Analyze the advantages and disadvantages of data mining for the individuals or the organizations.

11.a

Answer:

The three key components may be:

1. The sender's e-mail address
2. The recipient's e-mail address
3. The message content.

Other acceptable answers:

- *Subject Line*
- *CC (Carbon Copy)*
- *BCC (Blind Carbon Copy)*
- *Date and Time*
- *Attachments*
- *Signature*

3

Marking guidance:
*Each component is worth 1 mark (1*3=3 marks)*
Student may use another words to name these three key components, for example:

The name of the component	The words that reflects the same meaning
The sender's e-mail address	From address/ Email origin/ Sender information
The recipient's email address	To address/ Receiver's address/ Destination email
The Message content	Body of the email/ Text/message /Email content/ Communication text/letter
Subject Line	Email subject /Topic /Title /Headline
CC (Carbon Copy)	Courtesy Copy /Additional recipient /Secondary recipient
BCC (Blind Carbon Copy)	Hidden recipient/ Concealed copy /Undisclosed recipient
Date and Time	Timestamp /Sent date /Time of email /Email time
Attachments	Included files /Added documents /Attached items/ Email add-ons
Signature	Email footer /Contact information /Email sign-off

All these alternative words or any other correct terms that gives the same meaning should be accepted.

Assessment Objective	AO1
Page Reference	274
Learning Outcome	Identify the key components of an e-mail.

<table>
<tr>
<td>11.b</td>
<td>
A sample answer:
1. Promoting New Products: Businesses can use email to send marketing campaigns that promote new products or services to their customer base. For instance, a clothing retailer may use email to announce a new collection launch to previous customers.
2. Providing Customer Support: Organizations can use email as a tool for handling customer inquiries and support requests. For example, a software company might have a dedicated support email address where customers can reach out with technical issues.

Marking guidance:
1 mark for each real-world example, (1*2 =2 marks) AO2
Other possible answers may be:
Sending Order Confirmations: Businesses can use email to automatically send order confirmation messages to customers after a purchase. For instance, an e-commerce store might send an email to confirm the details of an order, including the items purchased, the total cost, and the expected delivery date.
Requesting Customer Feedback: Organizations can use email to request feedback from customers regarding their products or services. For example, after completing a service, a hotel might send a follow-up email asking guests to fill out a survey or provide feedback on their stay.

<table>
<tr><td>Assessment Objective</td><td>AO2</td></tr>
<tr><td>Page Reference</td><td>274-275</td></tr>
<tr><td>Learning Outcome</td><td>Analyze the role of e-mail as a primary method of communication for businesses and organizations.</td></tr>
</table>
</td>
<td>2</td>
</tr>
<tr>
<td>12.a</td>
<td>
Answer:
Computer-based training.

<table>
<tr><td>Assessment Objective</td><td>AO2</td></tr>
<tr><td>Page Reference</td><td>277</td></tr>
<tr><td>Learning Outcome</td><td>Identify and explain the various application of computer-based training in organizations and businesses.</td></tr>
</table>
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<td>1</td>
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<tr>
<td>12.b</td>
<td>
Answer:
Video conferencing.
<table>
<tr><td>Assessment Objective</td><td>AO2</td></tr>
<tr><td>Page Reference</td><td>279</td></tr>
<tr><td>Learning Outcome</td><td>Evaluate the suitability of video conferencing for different educational contexts.</td></tr>
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<td>1</td>
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<tr>
<td>12.c</td>
<td>
Answer:
Massive open online course.
<table>
<tr><td>Assessment Objective</td><td>AO2</td></tr>
<tr><td>Page Reference</td><td>278</td></tr>
<tr><td>Learning Outcome</td><td>Analyze the advantage and disadvantages of MOOCs</td></tr>
</table>
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<td>1</td>
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</table>

12.d

Answer:
Online tutorials.

Assessment Objective	AO2
Page Reference	278
Learning Outcome	Discuss the features and characteristics of online learning

1

13

Answer:

The advantages	The discussion
Increased efficiency and precision	Robotics in manufacturing allows for tasks to be completed more quickly and with greater precision than manual labor. For example, in automotive manufacturing, robots can assemble car parts consistently and without error, ensuring high-quality products are produced at a faster rate than human workers.
Reduced labor costs	Once the robots are programmed and installed, they can work continuously without the need for breaks or overtime pay. For example, in electronics assembly lines, robots can work 24/7, reducing the need for human labor.

Marking Guidance:

1 mark for identifying ONE correct advantage of using robotics in manufacturing (AO1).
*2 marks for the discussion: how these two advantages positively affect the manufacturing process. (1 for the discussion of each advantage (1*2=2 marks) (AO3).*
*1 mark for the illustrative examples that support the discussion (0.5 for each illustrative example, 0.5*2=1 mark) (AO2)*

Other correct advantages may be:

- **Ability to perform dangerous tasks:**
  Robots can take on tasks that are too dangerous for human workers, reducing the risk of injury. For example, in chemical manufacturing, robots can handle hazardous materials or work in environments that are unsafe for humans, improving workplace safety.
- **Ability to work continuously without breaks:**
  Another advantage is that robots can work 24/7 without needing rest or breaks. This enables manufacturing processes to run continuously, increasing overall production output. For example, in an electronics assembly plant, robots can operate around the clock, allowing for increased production without downtime.

4

The provided answer is just a sample answer; all other answers should be marked based on the following rubric:

Mark	**Criteria:** Identifying ONE correct advantage of using robotics in manufacturing **AO1 (Remembering and Understanding)**	Mark	**Criteria:** Supporting the discussion with an illustrative example. **AO2 (Application)**	Mark	**Criteria:** Correctly discussing how each advantage positively affects the manufacturing process. **AO3 (Reasoning)**
1	One correct advantage of using robotics in manufacturing is clearly identified.	1	Both advantages are clearly supported with relevant illustrative examples that demonstrate their real-world application.	2	Clear and well-reasoned discussion on how both advantages positively affect the manufacturing process.
0	No correct advantage is identified, or the advantage is irrelevant.	0.5	One advantage is supported with a relevant illustrative example, or two examples are provided but lack clarity.	1	Discussion is provided for one advantage only, or the discussion of both advantages is lacking depth.
		0	No examples are provided, or the examples given are irrelevant or incorrect.	0	No discussion is provided or the discussion is irrelevant or incorrect.

Assessment Objective	AO1, AO2, AO3
Page Reference	280
Learning Outcome	Evaluate the potential advantages and disadvantages of using robotics in Manufacturing, taking into account factors such as cost, efficiency, and workforce dynamics.

14.a

Answer:
document.getElementById

Marking Guidance:

1 mark for correctly rewriting the method as document.getElementById
(0.5 mark for E, 0.5 mark for B)

Assessment Objective	AO1
Page Reference	470
Learning Outcome	Write the syntax of document.getElementById

1

14.b

Answer:
The document.getElementById() method is used to access an HTML element by its id attribute. It allows JavaScript to modify the content or style of the selected element.

Assessment Objective	AO1
Page Reference	470
Learning Outcome	Explain the purpose of using document.getElementById

1

14.c

Answer:
```
var userName = prompt("Please enter your name:");
var isCorrect = confirm("You entered " + userName + ". Is this correct?");
```

Marking Guidance:

2 marks if both lines are correctly completed (prompt for user input and confirm for the confirmation box).
1 mark if only one of the lines is correct.
0 marks if both lines are incorrect.

Assessment Objective	AO2
Page Reference	472
Learning Outcome	Write the syntax for displaying a confirm box Write the syntax for displaying a prompt box

2

15.a

Answer:
- Webcam and Microphone
- Compatible Device (Computer/Tablet/Smartphone)

Marking Guidance:
*0.5 for each requirement (0.5*2= 1 mark)*
Other correct answers may include:
- Video Conferencing software
- Internet Connection
- Speakers or Headphones
- Adequate Lighting
- Stable Power Supply
- Meeting Link or Access Credentials

Assessment Objective	AO1
Page Reference	279
Learning Outcome	Describe how video conferencing is used for teaching and learning.

1

15.b

A sample Answer:

Internet Connectivity: Poor internet connectivity can cause disruptions, such as lagging audio or video, which makes it difficult for students to follow the lesson and for teachers to communicate effectively.

Lack of Face-to-Face Interaction: Video conferencing reduces direct interaction between the teacher and students, making it harder for the teacher to gauge student engagement and provide immediate feedback during the lesson.

Marking Guidance:

*The analysis of each factor and its impact is worth 1 mark (1*2=2 marks)*

The provided answer is just a sample answer. Other valid responses based on the scenario may be: managing in-person and remote students simultaneously or technical difficulties with the video conferencing platform.

Assessment Objective	AO3
Page Reference	279
Learning Outcome	Explain the factors that affects the quality of the lessons held via video conferencing.

2

15.c

A sample answer:

1. **Increased access to diverse learning materials:** At Al-Aamal High School, students can access a wide range of digital resources such as e-books, videos, and interactive content through platforms like Zoom and Microsoft Teams (AO2). This enables students to learn in different ways that suit their learning preferences (AO3). For example, visual learners benefit from multimedia resources, while other students can revisit recorded lessons, reinforcing their understanding.

2. **Enhanced student engagement through interactive tools:** Teachers at Al-Aamal High School use video conferencing features like breakout rooms and screen sharing to encourage student participation (AO2). These tools make lessons more interactive, allowing students to collaborate in real-time, regardless of whether they are learning in-person or remotely. This increased interaction keeps students engaged and helps them better understand the material through group discussions and multimedia presentations (AO3).

Marking Guidance and rubric:

*0.5 mark for **identifying and linking** each of the two benefits of using technology in the learning process specifically to the scenario at Al-Aamal High School. (0.5*2=1 mark) (AO2).*

*1 mark for analyzing the positive impact of each benefit (1*2 = 2 marks) (AO3).*

3

The provided answer is just a sample answer. All other answers should be marked based on the following rubric:

Mark	**Criteria:** Identifying and linking each of the two benefits of using technology in the learning process specifically to the scenario at Al-Aamal High School. **AO2 (Application)**	Mark	**Criteria:** Discussing each benefit and its impact. **AO3 (Reasoning)**
1	The student correctly identifies two benefits and links them directly to the scenario at Al-Aamal High School.	2	The student provides a clear explanation of the benefit's impact on the learning process, clearly analyzing how it improves student learning, engagement, or access to resources
0.5	The student correctly identifies one benefit and links it directly to the scenario at Al-Aamal High School, or identifies two benefits but doesn't link them to the scenario of Al-Amal High school.	1	The student provides a basic explanation, but lacks depth or clarity in analyzing the benefit's impact.
0	No answer or irrelevant answer.	0	No answer or irrelevant answer.

Assessment Objective	AO2, AO3
Page Reference	281
Learning Outcome	Explain the factors that affects the quality of the lessons held via video conferencing.

[The End of the Marking Guide]





امتحان دبلوم التعليم العام للمدارس الخاصة (ثنائية اللغة)

الفصل الدراسي الأول - الدور الثاني

للعام الدراسي ١٤٤٧/١٤٤٦ هـ - ٢٠٢٥/٢٠٢٤ م

تنبيه:
- المادة: تقنية المعلومات والاتصالات.
- الأسئلة في (١٠) صفحات.
- زمن الإجابة: ثلاث ساعات.
- الإجابة في الورقة نفسها.

تعليمات مهمة:

- يجب الحضور إلى قاعة الامتحان قبل عشر دقائق على الأقل من بدء زمن الامتحان.
- يجب إحضار أصل ما يثبت الهوية وإبرازها للعاملين بالامتحانات.
- يجب الالتزام بالزي (الدشداشة البيضاء والمصر أو الكمة للذكور) والزي المدرسي للطالبات ، ويستثنى من ذلك الدارسون من غير العمانيين بشرط الالتزام بالذوق العام، ويمنع على جميع المتقدمات ارتداء النقاب داخل المركز وقاعات الامتحان.
- يحظر على الممتحنين اصطحاب الهواتف النقالة وأجهزة النداء الآلي وآلات التصوير والحواسيب الشخصية والساعات الرقمية الذكية والآلات الحاسبة ذات الصفة التخزينية والمجلات والصحف والكتب الدراسية والدفاتر والمذكرات والحقائب اليدوية والآلات الحادة أو الأسلحة أياً كان نوعها وأي شيء له علاقة بالامتحان.
- يجب على الممتحن الامتثال لإجراءات التفتيش داخل المركز طوال أيام الامتحان.
- يجب على الممتحن التأكد من استلام دفتر امتحانه، مغلفاً بغلاف بلاستيكي شفاف وغير ممزق ، وهو مسؤول عنه حتى يسلمه لمراقبي اللجنة بعد الانتهاء من الإجابة.
- يجب الالتزام بضوابط إدارة امتحانات دبلوم التعليم العام وما في مستواه وأية مخالفة لهذه الضوابط تعرضك للتدابير والإجراءات والعقوبات المنصوص عليها بالقرار الوزاري رقم ٥٨٨ / ٢٠١٥.
- يقوم المتقدم بالإجابة عن أسئلة الامتحان المقالية بقلم الحبر (الأزرق أو الأسود).
- يقوم المتقدم بالإجابة عن أسئلة الاختيار من متعدد بتظليل الشكل (○) وفق النموذج الآتي:

س – عاصمة سلطنة عمان هي:

○ القاهرة ○ الدوحة

● مسقط ○ أبوظبي

ملاحظة: يتم تظليل الشكل (●) باستخدام القلم الرصاص وعند الخطأ، امسح بعناية لإجراء التغيير.

صحيح ● **غير صحيح** ▭ ◉ ◔ ☒ ☑

مُسَوَّدَة، لا يتم تصحيحها

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Question One: Multiple Choice (Items 1 – 8) (8 Marks)

Shade in the bubble (○) next to the **correct** answer for each of the following items.

1. An example of **electronic currencies** is:

- ○ Tokens
- ○ Gold coins
- ○ Banknotes
- ○ Personal checks

2. Which stage of data mining involves selecting, cleansing and constructing the data before analysis?

- ○ Data collection
- ○ Data preparation
- ○ Data modeling
- ○ Data evaluation

3. A business wants to utilize both email and forums to facilitate communication with its customers.

Which of the following represents the correct use of both channels?

- ○ Use email to receive a customer's complaints and inquiries without answering it and the forum to broadcast product updates without any interaction.
- ○ Use email for promotional materials and the forum exclusively for receiving and solving sensitive billing issues.
- ○ Use email for automated responses only and the forum for all other communication, including private inquiries.
- ○ Use email for one-on-one communication and the forum for public discussions where customers can seek advice and share experiences.

4. The primary objective of utilizing the Video Assistant Referee system (VAR) in football matches is to:

- ○ reduce the overall length of the game.
- ○ replace the assistant referees in the field.
- ○ overturn incorrect decisions after the match.
- ○ assist referees in making accurate decisions during the match.

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Question one continued:

5. To locate a missing person, an effective IT application utilized to enhance the effectiveness of law enforcement agencies is:

- ☐ analyzing CCTV footage to identify the last known location of the individual.
- ☐ distributing printed flyers in the community to raise awareness.
- ☐ relying on public announcements for information gathering.
- ☐ organizing volunteer search parties to canvass the area.

6. A webpage developer wants to display the text "Welcome to the page!" onto the page after it loads.
The line of the code that correctly performs this task is:

- ☐ document.log("Welcome to the page!");
- ☐ document.print("Welcome to the page!");
- ☐ document.write("Welcome to the page!");
- ☐ document.display("Welcome to the page!");

7. Which of the following is a key feature of a popup box in JavaScript?

- ☐ It is used to display information or request input from the user in a small window.
- ☐ It allows users to interact with the webpage without any disruption.
- ☐ It automatically closes after a set time without user interaction.
- ☐ It refreshes the entire webpage when opened.

8. A programmer wants to create a webpage that asks the user to input their age.
The line of the code that can be used to achieve this is:

- ☐ var age = prompt("Please enter your age:");
- ☐ var age = confirm("Please enter your age:");
- ☐ var age = prompt.text("Please enter your age:");
- ☐ var age = window.alert("Please enter your age:");

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Question Two: Extended Response (Items 9–17) (32 Marks)

Answer ALL questions in the space provided.

9. Identify whether each of the following characteristics is related to **physical currency** or **electronic currency**.

The characteristic	The type of currency
a. It is more likely to be stolen or lost if it isn't stored safely.	_____ [1]
b. Transactions are completed digitally and can occur across borders in real-time.	_____ [1]
c. It requires a traditional exchange of cash or coins to complete transactions.	_____ [1]
d. Security features such as encryption and block chain enhance transaction safety.	_____ [1]

10. The table below outlines the key phases of the data mining process used in the healthcare sector to predict disease outbreaks.
Complete the table by writing the missing application for the indicated step.

The phase name	The involved tasks
Business Understanding	Define the objectives for predicting disease outbreaks.
Data Understanding	Analyze the collected data to identify patterns and trends related to past outbreaks.
Data Preparation	Prepare the data for analysis by purifying and formatting it to ensure its quality and consistency.
Data Modeling	Apply algorithms to develop disease outbreak predictive models.
Evaluation	Assess the predictive model accuracy and reliability.
Deployment	_____ _____ [1]

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Question two continued:

11. Data mining is widely used in marketing, including customized advertising, which means creating advertisements based on a person's interests and behavior to reach consumers more effectively.
Describe the process of data mining in terms of:

- The definition of data mining process.
- **ONE** possible application of data mining in customized advertising.
- **TWO** ethical and privacy concerns and their negative impact, associated with the use of data mining in customized advertising.

[4]

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Question two continued:

12. Online forums are increasingly being used by businesses as a platform for managing various interactions.

a. Define forums.

_____

_____

_____ [1]

b. Identify **TWO** key benefits of using forums in different sectors.

1. _____

_____

2. _____

_____

[2]

c. In an online forum, a user has posted inappropriate content and repeatedly spammed irrelevant links.

As the forum's moderator, describe **TWO** actions you may take to maintain a respectful and organized forum.

1. _____

_____

2. _____

_____

[2]

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Question two continued:

13. A school teacher wants to conduct an effective video conferencing lesson.

Identify **TWO** actions he should take to ensure smooth communication with students.

1. _____

_____

2. _____

_____

[2]

14. Identify appropriate technology-enhanced learning platform for each of the following situations:

a. A bank employee wants to enhance his skills by taking an open-access free online course that allows him to study at his own pace, and earn a certification upon completion.

_____ [1]

b. A group of students is working on a course project and needs a collaborative learning platform that enables them to share documents and communicate in real time.

_____ [1]

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Question two continued:

15. IT has transformed modern manufacturing processes, particularly through the use of robotics and automation.
Explain how IT is used in manufacturing by:

- Providing **ONE** real-world example of how IT can be used to improve productivity in manufacturing.
- Briefly describing how robotics can improve worker's safety.
- Discussing **ONE** advantage and **ONE** disadvantage of using robotics in manufacturing.

[4]

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Question two continued:

16. Read the following JavaScript code:

```
<script>
    document.getElementById("output").innerHTML = "Welcome, User!";
    var age = _____ (“Please enter your age:”);
    var isCorrect = _____ ("You entered " + age + ". Is this correct?");
    var doubleAge = age * 2;
</script>
```

a. Complete the following lines of the code to display the appropriate pop-up boxes for user interaction.

i. var age = _____ (“Please enter your age:”);

[1]

ii. var isCorrect =_____ ("You entered " + age + ". Is this correct?");

[1]

b. Describe the main purpose for each of the following:

i. getElementById method.

_____

_____[1]

ii. Confirm box.

_____

_____[1]

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Question two continued:

17. Read the following scenario then answer all questions in the space provided.

A high school has implemented an online learning platform (LMS) to provide students with online tutorials, video conferencing for remote lessons, and digital assignments. The platform also includes tools for tracking student progress and providing personalized feedback. Some students benefit greatly from the flexibility of learning at their own pace and reviewing materials multiple times. However, concerns have arisen about how this technology might affect students' social interactions and their ability to develop teamwork skills. Teachers are also worried about the impact of increased screen time on students' attention spans and their ability to concentrate during lessons.

a. Identify **ONE** feature of the platform that supports personalized learning?

_____

_____ [1]

b. Describe how students can take advantage of the flexibility of online tutorials to enhance their learning.

_____

_____ [1]

c. Discuss **TWO** potential negative impacts of using the platform on students' social skills and attention.

_____

_____

_____

_____ [2]

Do not write in this space

Question two continued:

d. Suggest **ONE** way the school could address the concerns about teamwork skills while still using the platform and **justify** your suggestion.

_____

_____

_____

_____ [2]

[End of Examination]

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Marking Guide of General Educational Diploma for Private Schools

Semester ONE – Second Session

Academic Year: 2024/2025

Subject: ICT

Note: There are 11 pages in this guide

First: Answers for the Multiple-Choice Items (8 Marks):

N.	Answer	Mark	Learning Outcome	Assessment Objective
1	A Tokens	1	Differentiate between electronic currency and physical currency, such as coins and banknotes.	AO1
2	B Data preparation	1	Identify and describe the stages of data mining, such as business understanding, data preparation, data modeling, evaluation, and deployment.	AO1
3	D Use email for one-on-one communication and the forum for public discussions where customers can seek advice and share experiences.	1	Evaluate the advantages of using forums. Evaluate the effectiveness of e-mail to make complaints or inquires.	AO2
4	D assist referees in making accurate decisions during the match.	1	Evaluate the effectiveness of IT systems like VAR or Hawk-Eye in enhancing the accuracy of referring decisions.	AO1
5	A analyzing CCTV footage to identify the last known location of the individual.	1	Explain how IT is used in monitoring and surveillance.	AO1
6	C document.write("Welcome to the page!");	1	Write the syntax of document.write code and apply it to output data to a web page.	AO2

7	A It is used to display information or request input from the user in a small window.	1	Explain the purpose of using pop-up boxes in JavaScripts.	AO1
8	A var age = prompt("Please enter your age:");	1	Write the syntax for displaying a prompt box	AO2

Second: Answers for the Extended Response Items (32 Marks):

General Notes

- There may be different ways of answering questions, but a basic requirement for all answers is that they are RELEVANT.
- If the answer is clearly not relevant, and the student has clearly made no attempt to answer the question that was set, NO marks should be awarded. However, if the student has genuinely attempted the answer, but his answer is only partly relevant, then a reduced mark (not zero) should be awarded.

<table>
<tr><th>N.</th><th>Correct Answer</th><th>Mark</th></tr>
<tr><td>9
a,b,c,d</td><td>
Answer:
a. Physical currency [1]
b. Electronic currency [1]
c. Physical currency [1]
d. Electronic currency [1]

<table>
<tr><td>Learning Outcome</td><td>Analyze the similarities and differences between digital currency and traditional payment methods in terms of convenience, security, and transaction processes.</td></tr>
<tr><td>Assessment Objective</td><td>AO1</td></tr>
<tr><td>Pages</td><td>265-266</td></tr>
</table>
</td><td>4</td></tr>
<tr><td>10</td><td>
Answer:
Deployment: Implement the model for real-time outbreak monitoring. Or: Integrate the predictive model into health monitoring systems to provide alerts for potential outbreaks.

<table>
<tr><td>Learning Outcome</td><td>Explain the importance of each stage and its role in the overall data mining process.</td></tr>
<tr><td>Assessment Objective</td><td>AO2</td></tr>
<tr><td>Pages</td><td>269 – 270</td></tr>
</table>
</td><td>1</td></tr>
</table>

A sample answer:

Data mining is the process of collecting large sets of data and analyzing them to identify patterns and trends (AO1). One possible application of data mining is that it helps marketers to analyze the customer's behavior to offer personalized advertisements based on the customer's browsing history and preferences (AO2). There are multiple ethical and privacy concerns associated with the use of data mining in customized advertising. First, customized advertising can use personal data without the user's permission, which can feel manipulative or unfair. Second, sharing personal data for advertisements can put sensitive information of customers at risk, leading to potential data breaches or misuse (AO3).

Marking Guidance and Rubric:

The answer provided is just a sample answer; all other answers should be marked based on the following rubric:

Mark	**Criteria:** Define data mining. **AO1 (Remembering and Understanding)**	**Mark**	**Criteria:** Supporting the discussion with a relevant application. **AO2 (Application)**	**Mark**	**Criteria:** Discussing TWO ethical and privacy concerns and their impact. **AO3 (Reasoning)**
1	The answer provides a clear definition of data mining.	1	A relevant and clear application is provided.	2	The answer clearly discusses two relevant ethical and privacy concerns.
0.5	The answer provides a partially accurate or incomplete definition of data mining.	0.5	A relevant application is provided but lacks specificity.	1	The answer discusses one relevant ethical and privacy concern, or two ethical and privacy concerns but lacks clarity.
0	No definition provided or incorrect definition.	0	No relevant or coherent application is provided.	0	No relevant ethical and privacy concern is provided.

11 **4**

	Learning Outcome: Identify and describe the stages of data mining, such as business understanding, data preparation, data modeling, evaluation, and deployment Discuss the diverse applications of data mining in various sectors, including national security, surveillance, business, research, healthcare, and predict social and economic trends. Analyze the ethical and privacy concerns associated with targeted advertising and sharing of personal data **Assessment Objective**: AO1, AO2, AO3 **Pages**: 269-272	
12.a	**Answer:** Forums are online places that users can post thoughts, ideas and questions. **Learning Outcome**: Define forums. **Assessment Objective**: AO1 **Pages**: 274	**1**
12.b	**Answer:** **Any two benefits are correct:** - Allow businesses to directly engage with customers, giving them a platform to share feedback, ask questions, and participate in discussions. This helps build customer trust and fosters a community of loyal users. - Encourage sharing and collaboration between users. Customers can help each other by answering questions or discussing product usage, which reduces the need for constant business intervention and improves customer satisfaction. - Provide a continuous communication channel between the business and its customers, enabling businesses to share product updates, announcements, and gather valuable feedback for improvements. **Learning Outcome**: Evaluate the advantages of using forums. **Assessment Objective**: AO1 **Pages**: 274	**2**

12.c

Answer:

- The inappropriate content should be removed immediately to maintain the forum's professional and respectful environment. This ensures that users feel safe and comfortable participating in discussions.
- The user who is spamming irrelevant links should be blocked or banned to prevent further disruption. This keeps the forum organized and protects other users from spam.

2

Marking Guidance and Rubric:

The answer provided is just a sample answer; all other correct answers should be awarded.

Learning Outcome	Explain the role of moderators in forums.
Assessment Objective	AO2
Pages	274

13

Answer:

- Technical issue: The teacher should ensure that all students have a reliable internet connection and proper audio/video equipment before the lesson. This helps avoid technical issues that could interrupt communication during the session.
- Participation guidelines: The teacher should set clear guidelines for participation, such as muting microphones when not speaking and using the chat feature for questions. This helps maintain order and ensures that everyone can communicate smoothly without interruptions.

2

Marking Guidance and Rubric:

The answer provided is just a sample answer; all other answers should be marked based on the following rubric:

Mark	**Application (AO2)**
2	The answer provides two relevant actions for smooth communication.
1	The answer provides one relevant action for smooth communication.
0	No answer provided lacks relevance to the question.

	Learning Outcome Describe how video conferencing is used for teaching and learning. **Assessment Objective** AO2 **Pages** 279-280	
14.a	**Answer:** Massive open online course (MOOC). Assessment Objective: AO2 Page Reference: 278 Learning Outcome: Analyze the advantages and disadvantages of MOOCs	**1**
14.b	**Answer:** Networked learning. Assessment Objective: AO2 Page Reference: 278 Learning Outcome: Explain the aims of networked learning.	**1**
15	**A sample answer:** Robotics is a prime example of how IT has transformed manufacturing processes. By automating repetitive tasks, such as assembly, welding, and packaging, robots can significantly speed up production processes and reduce manufacturing times (AO1). It can handle dangerous tasks, such as working with hazardous materials or operating heavy machinery, reducing the risk of injuries to human workers. This is particularly important in industries with high safety risks, such as chemical manufacturing or automotive production (AO2). One advantage of using robotics in manufacturing is the **Increased Efficiency** as robots can work continuously without breaks, leading to increased production efficiency and reduced manufacturing costs. On the other hand, the high cost of robotics considered as disadvantage and it could be a barrier for smaller companies that may not have enough financial resources to cover this cost (AO3).	**4**

Marking Guidance and Rubric:

The answer provided is just a sample answer; all other answers should be marked based on the following rubric:

Mark	**Criteria:** Writing one example of how IT can be used to improve productivity in manufacturing. **AO1 (Remembering and Understanding)**	Mark	**Criteria:** Explaining how robotics can improve the worker's safety. **AO2 (Application)**	Mark	**Criteria:** Discussing one advantage and one disadvantage of using robotics in manufacturing. **AO3 (Reasoning)**
1	The answer provides a clear and related example of how IT can be used to improve productivity in manufacturing.	1	A relevant and clear explanation of how robotics can improve worker's safety is provided.	2	The answer discusses one relevant advantage and one relevant disadvantage and their impact.
0.5	The answer provides a partially accurate or incomplete example of how IT can be used to improve productivity in manufacturing. .	0.5	A relevant explanation of how robotics can improve worker's safety is provided but lacks specificity.	1	The answer discusses one relevant advantage or one relevant disadvantage.
0	No example provided or incorrect example.	0	No relevant or coherent explanation of how robotics can improve worker's safety is provided.	0	No relevant advantages and disadvantages are discussed.

Learning Outcome	• Identify examples where robotics used in manufacturing. • Demonstrate how robotics can be implemented in manufacturing to enhance productivity and worker safety. • Evaluate the potential advantages and disadvantages of using robotics in manufacturing, taking into account factors such as cost, efficiency, and workforce dynamics.
Assessment Objective	AO1, AO2, AO3
Pages	280

<table>
<tr>
<td>16.a.
(i, ii)</td>
<td>
Answer:
i:
var age = prompt(“Please enter your age:”); [1]
ii:
var isCorrect = confirm("You entered " + age + ". Is this correct?"); [1]

<table>
<tr><td>Learning Outcome</td><td>Write the syntax for displaying a confirm box
Write the syntax for displaying a prompt box</td></tr>
<tr><td>Assessment Objective</td><td>AO2</td></tr>
<tr><td>Pages</td><td>472</td></tr>
</table>
</td>
<td>2</td>
</tr>
<tr>
<td>16.b
(i, ii)</td>
<td>
Answer:
i: Used to find an HTML element on a webpage by its unique ID. It lets developers change the content or appearance of that element using JavaScript. [1]

ii. A pop-up dialog in JavaScript that asks the user to confirm or cancel an action (It typically displays "OK" and "Cancel" buttons). It is used to confirm user actions before proceeding. [1]

<table>
<tr><td>Learning Outcome</td><td>Explain the purpose of using document.getElementByID in JavaScript.
Explain the purpose of using pop-up boxes in JavaScript.</td></tr>
<tr><td>Assessment Objective</td><td>AO1</td></tr>
<tr><td>Pages</td><td>470-472</td></tr>
</table>
</td>
<td>2</td>
</tr>
<tr>
<td>17.a</td>
<td>
Answer:

Tracking student progress OR providing personalized feedback.

Marking Guidance:

1 mark for a correct and clear feature.
0 marks if the feature is incorrect or unclear.

<table>
<tr><td>Learning Outcome</td><td>Discuss the features and characteristics of online courses.</td></tr>
<tr><td>Assessment Objective</td><td>AO1</td></tr>
<tr><td>Pages</td><td>278</td></tr>
</table>
</td>
<td>1</td>
</tr>
<tr>
<td>17.b</td>
<td>
A sample answer:

Students can learn at their own pace and review material multiple times, which helps them understand difficult topics better.
</td>
<td>1</td>
</tr>
</table>

Marking Guidance:

1 mark for a correct and clear description.
0 marks if the description is incorrect or unclear.

Learning Outcome	Evaluate the advantages of computer-based learning
Assessment Objective	AO2
Pages	277

17.c

Answer:

Using the platform might negatively impact students' social skills by reducing face-to-face interactions, which are important for developing teamwork and communication abilities. Additionally, the increased screen time associated with using the platform could affect students' attention spans, potentially leading to shorter periods of focus and difficulty staying engaged during lessons.

Marking Guidance and Rubric:

The answer provided is just a sample answer; all other answers should be marked based on the following rubric:

Mark	Reasoning (AO3)
2	TWO accurate and relevant negative impacts on social skills and attention span are discussed.
1	One accurate and relevant negative impact on social skills and attention span is discussed.
0	No discussion or irrelevant discussion.

Learning Outcome	Evaluate the advantages and disadvantages of networked learning.
Assessment Objective	AO3
Pages	278

2

17.d

Answer:

The school could address concerns about team work while still using the platform is by incorporating group projects or collaborative tasks to the platform, such as, working on shared assignments or presentations. This approach allows students to practice communication and coordination and ensure that students develop their digital collaboration skills.

Marking Guidance and Rubric:

The answer provided is just a sample answer; all other answers should be marked based on the following rubric:

Mark	Reasoning (AO3)
2	Accurate and relevant solution is provided with a clear justification.
1	Accurate and relevant solution is provided without a clear justification.
0	No answer is provided or answer lacks relevance to the question.

Learning Outcome	Explain the potential benefits of using technology in the learning process
Assessment Objective	AO3
Pages	281

2

[The End of the Marking Guide]