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LICENCE

PHYSIQUE-CHIMIE

ÉPREUVE C3 : S'EXPRIMER ET COMMUNIQUER À L'ORAL, À L'ÉCRIT, ET DANS AU MOINS UNE LANGUE ÉTRANGÈRE

SESSION 2026

Durée : 2 heures

SPÉCIALITÉ / UNITÉ	COEFF
PHYSIQUE-CHIMIE	3 (INDICATIF)

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Dès que le sujet vous est remis, assurez-vous qu'il est complet.

Ce sujet comporte 6 pages numérotées de 1/6 à 6/6.

Les documents réponses en fin de sujet sont à rendre avec la copie.

DOSSIER SUJET

CONSIGNES GÉNÉRALES DE L'ÉPREUVE : LABORATOIRE UNIVERSITAIRE DE PHYSIQUE APPLIQUÉE, GRENOBLE

Cette épreuve évalue votre capacité à comprendre des documents en anglais et à communiquer clairement par écrit dans un contexte lié à la physique-chimie. Les documents du dossier sont rédigés en anglais. Répondez aux questions de compréhension en français ou en anglais, sauf indication contraire. Pour chaque affirmation de vrai ou faux, une justification par une citation textuelle exacte du dossier est obligatoire. La seconde partie doit être rédigée en anglais et respecter la longueur demandée. Le dictionnaire n'est pas autorisé.

PARTIE 1 : COMPRÉHENSION DE L'ÉCRIT (10 points)

Repérage d'informations, compréhension globale et justification par le texte

Lisez les documents DT 1 et DT 2, puis répondez aux questions. Pour les questions de repérage et d'analyse, des réponses claires et concises sont attendues. Pour la question 1.5, indiquez vrai ou faux pour chaque affirmation et recopiez une citation exacte du dossier qui justifie votre réponse. Une réponse vrai ou faux sans citation ne sera pas considérée comme justifiée.

1.1 (1 point) In DT 1, where was the battery-monitoring pilot carried out, and what was its main purpose? Answer in French or English.

1.2 (1 point) According to DT 1, how many cells were included in the pilot, and how many were instrumented?

1.3 (1,5 point) Explain how the monitoring system helped the research team identify changes in cell temperature. Give two details from DT 1.

1.4 (1,5 point) What is the main message shared by DT 1 and DT 2 about communicating scientific results to non-specialists? Support your answer with one relevant idea from each document.

1.5 (5 points) For each statement in DR 1, mark TRUE or FALSE and provide an exact quotation from DT 1 or DT 2 as evidence. Copy the words exactly and place the quotation in quotation marks. Each item is worth 1 point.

PARTIE 2 : EXPRESSION ÉCRITE (10 points)

Rédaction professionnelle en anglais

Write a formal email in English of 150 to 250 words to the coordinator of the laboratory described in the dossier. You are a physics student taking part in a public science event. In your email, summarise one significant finding from the battery-monitoring pilot, explain one limitation or uncertainty that should be made clear to visitors, and propose one practical way of presenting the results to a non-specialist audience.

Use an appropriate subject line, greeting, paragraphs and closing formula. Do not copy whole sentences from the documents.

Assessment: relevance and fulfilment of the task, 4 points; clarity and organisation, 2 points; appropriate professional register, 2 points; grammar and vocabulary, 2 points.

2.1 (10 points) Write the email requested above. Your response must contain between 150 and 250 words.

DOSSIER TECHNIQUE ET RESSOURCES

Documents ressources nécessaires à la résolution du sujet

DT 1 : BATTERY MONITORING IN A UNIVERSITY LABORATORY

Original news-style reading text prepared for this examination

A research team at Northbridge University has completed a small pilot study on temperature monitoring in rechargeable battery cells. The work took place in a controlled laboratory chamber, where researchers compared 48 cells during repeated charge and discharge cycles. Twelve cells were fitted with additional temperature sensors; the remaining 36 were monitored using the laboratory's standard equipment.

The sensors recorded temperature once every second. The team displayed the readings on a live graph, with elapsed time on the horizontal axis and temperature in degrees Celsius on the vertical axis. During one test, the graph showed a gradual rise in temperature in two instrumented cells before the standard equipment registered a clear change. The researchers paused the test and inspected the cells. They reported no fire and no injury. Three test runs were stopped early because the readings reached the team's pre-set investigation threshold.

The project lead, Dr Maya Ellis, said the pilot suggests that additional sensors may help researchers notice some temperature changes earlier. She stressed that the trial was not designed to prove that the system prevents battery failures. The sample was small, the cells came from one product batch, and the results may not apply to other battery designs. The team plans to repeat the work with more cells and different operating conditions.

For the public, the researchers intend to show a simplified graph and explain that a temperature rise is a signal for investigation, not proof that a battery is about to fail. They also plan to distinguish what the pilot observed from what it has not yet established.

Pilot study: key figures

Item	Information
Total number of cells	48
Cells with additional temperature sensors	12
Cells monitored with standard equipment	36
Sensor recording interval	Once every second
Early-stopped test runs	3

Information reported in DT 1.

DT 2 : MAKING A LABORATORY GRAPH UNDERSTANDABLE

Original science communication feature prepared for this examination

A graph can be accurate and still be difficult to understand. In a recent public-engagement workshop at the Northbridge University science centre, 120 visitors were shown two versions of the same battery-temperature results. One version used a detailed laboratory graph with several lines and technical labels.

The other used a simpler graph, a short explanation of the axes and a shaded band to show the range of readings.

Seventy-eight per cent of visitors said they could identify the period in which the temperature began to rise more easily in the simplified version. However, the workshop was not a test of scientific knowledge, and the result should not be treated as proof that every audience will understand the same design. Participants were volunteers who had chosen to attend a science event.

Visitors were also asked how uncertainty should be presented. Sixty-four per cent preferred to see a range of possible readings rather than one headline number. Several participants said that a range made it easier to understand that measurements vary. The workshop team recommends naming the measured quantity, labelling units clearly and explaining what a graph can and cannot show.

For example, a graph of temperature against elapsed time can show when a measured temperature changed during a test. By itself, it cannot explain why the change occurred, establish that the same pattern will occur in every battery, or predict an individual battery's future behaviour. A short note beside the graph can help prevent readers from treating an observation as a guarantee.

NE RIEN ÉCRIRE DANS CETTE PARTIE

DR 1 : Grille de compréhension écrite et tableau de justification — **À RENDRE AVEC LA COPIE**

Complétez le tableau. Pour chaque affirmation, inscrivez TRUE ou FALSE et copiez une citation exacte de DT 1 ou DT 2 entre guillemets. Les citations doivent justifier le choix indiqué.

Tableau de réponses : question 1.5

N°	Statement	TRUE or FALSE	Exact quotation from DT 1 or DT 2
a	The pilot study included 48 battery cells.	.....	.....
b	Thirty-six cells were fitted with additional temperature sensors.	.....	.....
c	No test run was stopped before completion.	.....	.....
d	The graph used elapsed time and temperature in degrees Celsius.	.....	.....
e	The workshop results prove that every audience understands a simplified graph better.	.....	.....

À compléter par le candidat.

Cadre réservé aux justifications, calculs complémentaires ou schémas du candidat :

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