

© International Baccalaureate Organization 2026

All rights reserved. No part of this product may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without the prior written permission from the IB. Additionally, the license tied with this product prohibits use of any selected files or extracts from this product. Use by third parties, including but not limited to publishers, private teachers, tutoring or study services, preparatory schools, vendors operating curriculum mapping services or teacher resource digital platforms and app developers, whether fee-covered or not, is prohibited and is a criminal offense.

More information on how to request written permission in the form of a license can be obtained from <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

© Organisation du Baccalauréat International 2026

Tous droits réservés. Aucune partie de ce produit ne peut être reproduite sous quelque forme ni par quelque moyen que ce soit, électronique ou mécanique, y compris des systèmes de stockage et de récupération d'informations, sans l'autorisation écrite préalable de l'IB. De plus, la licence associée à ce produit interdit toute utilisation de tout fichier ou extrait sélectionné dans ce produit. L'utilisation par des tiers, y compris, sans toutefois s'y limiter, des éditeurs, des professeurs particuliers, des services de tutorat ou d'aide aux études, des établissements de préparation à l'enseignement supérieur, des fournisseurs de services de planification des programmes d'études, des gestionnaires de plateformes pédagogiques en ligne, et des développeurs d'applications, moyennant paiement ou non, est interdite et constitue une infraction pénale.

Pour plus d'informations sur la procédure à suivre pour obtenir une autorisation écrite sous la forme d'une licence, rendez-vous à l'adresse <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

© Organización del Bachillerato Internacional, 2026

Todos los derechos reservados. No se podrá reproducir ninguna parte de este producto de ninguna forma ni por ningún medio electrónico o mecánico, incluidos los sistemas de almacenamiento y recuperación de información, sin la previa autorización por escrito del IB. Además, la licencia vinculada a este producto prohíbe el uso de todo archivo o fragmento seleccionado de este producto. El uso por parte de terceros —lo que incluye, a título enunciativo, editoriales, profesores particulares, servicios de apoyo académico o ayuda para el estudio, colegios preparatorios, desarrolladores de aplicaciones y entidades que presten servicios de planificación curricular u ofrezcan recursos para docentes mediante plataformas digitales—, ya sea incluido en tasas o no, está prohibido y constituye un delito.

En este enlace encontrará más información sobre cómo solicitar una autorización por escrito en forma de licencia: <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

Biology
Standard level
Paper 2

12 May 2026

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

Session number

1 hour 30 minutes

--	--	--	--	--	--	--	--	--	--

Instructions to students

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Section A: answer all questions.
- Section B: answer one question.
- Answers must be written within the answer boxes provided.
- A calculator is required for this paper.
- The maximum mark for this examination paper is **[50 marks]**.



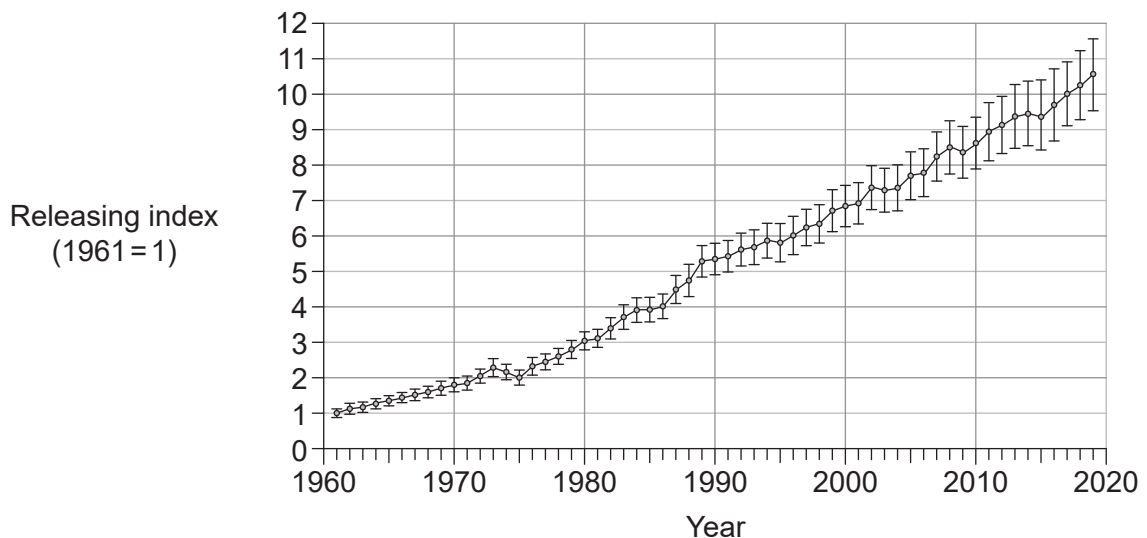
Section A

Answer **all** questions. Answers must be written within the answer boxes provided.

- The ring-necked pheasant (*Phasianus colchicus*) is native to parts of eastern Europe and Asia. It has been introduced to other parts of Europe and North America. Large numbers of birds are bred in captivity in many different forests in Britain and are released into the wild.



The graph shows changes in the number of pheasants released each year in Britain. The releasing index shows how many pheasants were released each year as a multiple of the number released in 1961. The error bars show 95% confidence intervals.



- Describe the changes in the number of pheasants released each year between 1961 and 2019.

[2]

.....

.....

.....

.....

(This question continues on the following page)



(Question 1 continued)

- (b) The number of pheasants released in 1961 was 4.82 million. Calculate how many pheasants were released in 2017.

[1]

.....

Raptors are birds that hunt and kill prey. Eight species of raptor, including the goshawk (*Accipiter gentilis*), had become extinct in Britain by the end of the 19th century. This was mainly due to birds being killed by humans and to nests being destroyed.

Goshawks were reintroduced successfully to Britain in the 1960s, and there are now over 600 pairs. The photo shows a goshawk and its offspring on a nest.



(This question continues on the following page)

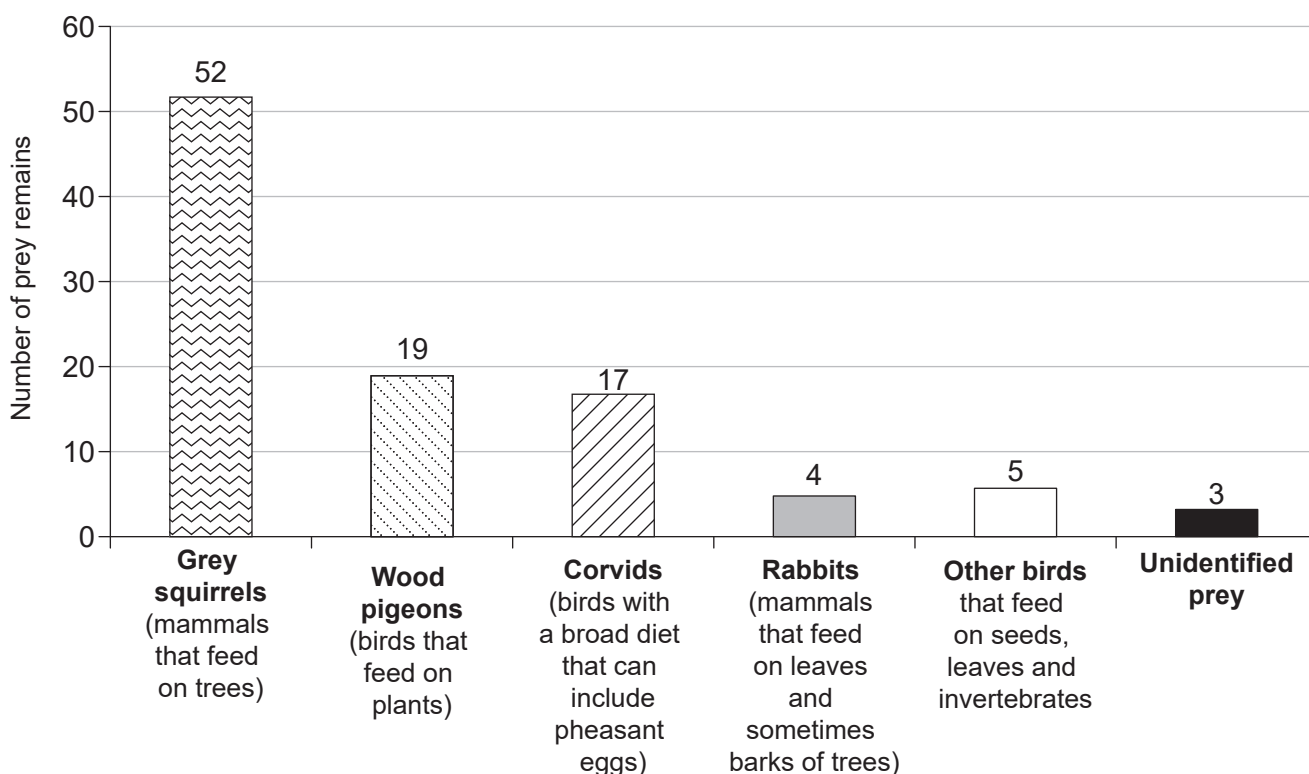


20EP03

Turn over

(Question 1 continued)

Goshawks have traditionally been killed with the aim of protecting birds, such as pheasants. Evidence for the effects of goshawks on pheasants is obtained by investigating prey selection. The bar chart shows the results of a study in Thetford Forest in eastern England, in which the remains of prey found at or near the goshawk nest were identified.



- (c) Evaluate the hypothesis that mammals form the largest part of the diet of the goshawks in Thetford Forest.

[3]

(This question continues on the following page)



(Question 1 continued)

Grey squirrels damage trees by stripping bark. The most severe damage happens when the leading shoot at the top of a tree is killed by removal of a complete ring of bark (ring-barked). Squirrel damage was monitored in an area of naturally regenerating oak woodland in the Forest of Dean in south-west England. The table shows damage to the 275 young oak trees in 1997. The diameter of the trunk increases during the life of a tree.

Diameter of tree trunk / mm	Number of trees	Number of trees with bark damage starting below 1 m, between 1 and 4 m, and above 4 m			Number of trees ring-barked above 4 m
		<1 m	1–4 m	>4 m	
25 to 49	64	0	0	0	0
50 to 74	79	0	2	1	0
75 to 99	77	0	1	16	2
100 to 124	44	0	5	22	7
125 to 149	10	0	0	9	2
150 to 174	1	0	0	1	1

(d) Analyse the data in the table to find trends in squirrel damage to young oak trees.

[2]

.....

.....

.....

.....

(e) Using the evidence provided, discuss whether killing of goshawks is likely to increase the sustainability of forests and pheasants.

[3]

.....

.....

.....

.....

.....

.....



2. Humans can respire both aerobically and anaerobically.

(a) State **one** substrate that humans can use in both aerobic and anaerobic respiration. [1]

.....

(b) Distinguish between aerobic and anaerobic respiration in humans. [2]

.....
.....
.....
.....

(c) Outline structural features of human lungs that adapt them for absorption of oxygen. [3]

.....
.....
.....
.....
.....
.....



3. The photo shows the plant Spanish moss (*Tillandsia usneoides*) growing on the branches of bald cypress (*Taxodium distichum*) trees in a swamp in Texas, USA. A great egret (*Ardea alba*) bird is attempting to prey on fish or other animals in the water.



- (a) State **one** advantage to a plant such as Spanish moss of growing on the branches of a tree.

[1]

.....

.....

- (b) Bald cypress can grow in swamps and in habitats that are sometimes flooded. Outline **one** advantage and **one** disadvantage to trees such as bald cypress of growing in a swamp.

[2]

.....

.....

.....

.....

- (c) Identify **one** adaptation of the great egret for catching or killing prey.

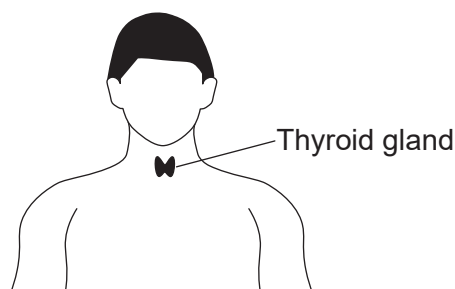
[1]

.....

.....



4. Thyroxin is secreted by the thyroid gland in the neck.



- (a) Outline the role of thyroxin in the human body.

[2]

.....

.....

.....

.....

- (b) An accident at a nuclear power station caused the release of ^{131}I , a radioactive isotope (form) of iodine. In the human body, iodine is absorbed by thyroid gland cells and is used to make thyroxin. The incidence of thyroid cancer increased greatly in children and adolescents living in areas that were contaminated by ^{131}I released by the accident.

- (i) Deduce how ^{131}I causes cancer.

[1]

.....

.....

- (ii) Most of the children and adolescents who developed thyroid cancer were successfully treated and survived.

Predict with a reason whether these children and adolescents could pass on thyroid cancer to their children.

[1]

.....

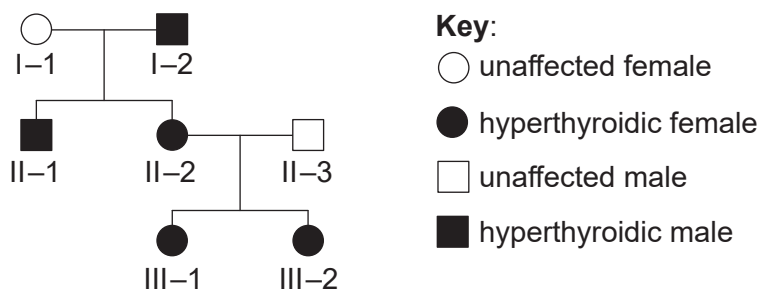
.....

(This question continues on the following page)



(Question 4 continued)

- (c) Hyperthyroidism is excessive secretion of thyroxin. The pedigree chart shows incidence of a rare inherited form of hyperthyroidism in a family.



Discuss the most likely pattern of inheritance of this **rare** form of hyperthyroidism, using evidence from the pedigree.

[2]

.....

.....

.....

.....



5. If a population has herd immunity to an infectious disease, an epidemic of that disease is unlikely.
- (a) Explain how herd immunity can be established in a population to prevent an outbreak of a disease. [2]

.....

.....

.....

.....

- (b) Outline the long-lasting changes that occur in a person's body that make them immune. [2]

.....

.....

.....

.....

The table shows the number of people one infected person is likely to transmit diseases to (R_0), and the herd immunity level for each disease.

Disease	R_0	Herd immunity / %
Measles	12–18	92–94
Rubella	6–7	83–86
Influenza	1.2–1.4	17–29

- (c) Deduce the reason that herd immunity to measles is only achieved when a high percentage of the population is immune. [1]

.....

.....

(This question continues on the following page)



(Question 5 continued)

- (d) In Britain, influenza vaccinations are not offered to all adults. Individuals who have a serious health condition, are older than 65, are pregnant or are frontline health workers are offered vaccinations. Suggest reasons for this policy.

[2]

.....

.....

.....

.....



Section B

Answer **one** question. One additional mark is available for the construction of your answer. Answers must be written within the answer boxes provided.

6. The diverse species of living organisms on Earth are united by their common ancestry.
 - (a) Describe the roles of components that are common to the cells of **all** organisms. [4]
 - (b) Discuss how populations of a species can evolve into separate species. [7]
 - (c) Outline the characteristics of the genetic code. [4]

7. Membrane structure allows movement of substances into and out of cells to be controlled.
 - (a) Outline the structure and properties of phospholipid molecules. [4]
 - (b) Explain the roles of proteins in transport across cell membranes. [7]
 - (c) Describe how a resting potential is generated in neurons. [4]





Disclaimer:

Content used in IB assessments is often taken from authentic, third-party sources. The views expressed within them belong to their individual authors and/or publishers and do not necessarily reflect the views of the IB. Sometimes fictitious companies, products or individuals are included in assessments; any similarities with actual entities are purely coincidental. Any trademarks™ or registered® trademarks included are used for illustrative purposes only, and use does not imply any affiliation with or endorsement by the International Baccalaureate.

References:

- 1.(a) Image: JMrocek, 2020. *Dominant common pheasant watching around on a clearing*. [online] Available at: <https://www.gettyimages.co.uk/detail/photo/dominant-common-pheasant-watching-around-on-a-royalty-free-image/1198288068> [Accessed 27 January 2025]. Source adapted.
- Graph: Game & Wildlife Conservation Trust.
- 1.(c) Image: blickwinkel, 2010. *northern goshawk (Accipiter gentilis), male in the nest with its chicks, Germany, North Rhine-Westphalia*. [image online] Available at: <https://www.alamy.com/stock-photo-northern-goshawk-accipiter-gentilis-male-in-the-nest-with-its-chicks-47901637.html?imageid=5332AE3E-18DF-4753-BDD4-47B00439AD78&p=34201&pn=1&searchId=3522fc460fec8a1e38b8024d7618acc4&searchtype=0> [Accessed 7 March 2025]. Source adapted.
- Graph: British Trust for Ornithology, n.d. *Tagging Goshawks in the Brecks*. [online] Available at: <https://www.bto.org/our-science/topics/tracking/tracking-studies/tagging-goshawks-brecks> [Accessed 27 January 2025]. Source adapted.
- 1.(d) Used with permission of Oxford University Press - Journals, from Influence of tree size and dominance on incidence of bark stripping by grey squirrels to oak and impact on tree growth, Institute of Chartered Foresters (Great Britain), volume 82, issue 4, year of 2009; permission conveyed through Copyright Clearance Center, Inc.
3. wanderluster, 2021. *Egret at Caddo Lake, TX*. [online] Available at: <https://www.gettyimages.co.uk/detail/photo/egret-at-caddo-lake-tx-royalty-free-image/1330827324> [Accessed 27 January 2025]. Source adapted.
- 4.(d) Used with permission of Springer Nature BV, from A Japanese family with nonautoimmune hyperthyroidism caused by a novel heterozygous thyrotropin receptor gene mutation, International Pediatric Research Foundation, Volume 75, Issue 6, 2014; permission conveyed through Copyright Clearance Center, Inc.



Please **do not** write on this page.

Answers written on this page
will not be marked.



20EP19

Please **do not** write on this page.

Answers written on this page
will not be marked.



20EP20