

© International Baccalaureate Organization 2021

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 2021

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, 2021

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/>.

Environmental systems and societies
Standard level
Paper 1

Tuesday 11 May 2021 (afternoon)

Candidate session number

1 hour

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

Instructions to candidates

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Answer all questions. Refer to the resource booklet which accompanies this question paper.
- Answers must be written within the answer boxes provided.
- A calculator is required for this paper.
- The maximum mark for this examination paper is **[35 marks]**.



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

1. (a) With reference to **Figure 2(a)**, identify the most widespread biome in Siberia. [1]

.....
.....

- (b) Using **Figures 2(a)** and **2(c)**, identify the agricultural activity that covers the greatest area in the taiga. [1]

.....
.....

2. With reference to **Figure 3**, suggest **two** reasons why primary productivity is greater in the taiga than in the tundra. [2]

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

3. With reference to **Figures 5(b)** and **5(c)**, outline **one** reason why the yaranga is more sustainable than the modern city house. [1]

.....
.....

4. (a) With reference to **Figure 6(b)**, identify **one** strategy that might have been used to achieve the trend in sulphur dioxide emissions since the early 1980s. [1]

.....
.....

(This question continues on the following page)



(Question 4 continued)

- (b) Explain the distribution of vegetation damage shown in **Figure 6(c)**. [3]

.....

.....

.....

.....

.....

.....

5. (a) Describe a practical strategy using a biotic index to provide evidence that the Daldykan River (**Figures 6(d)** and **6(e)**) is damaged by effluent from the metal processing plant. [3]

.....

.....

.....

.....

.....

.....

- (b) When measuring levels of pollution, state **one** advantage and **one** disadvantage of using a biotic index compared to measuring the pollutants directly.

- (i) Advantage [1]

.....

.....

.....

- (ii) Disadvantage [1]

.....

.....

.....



08EP03

Turn over

6. (a) Outline **one** ecological service provided by the Siberian taiga. [1]

.....
.....

(b) With reference to **Figure 7(b)**, calculate the percentage of timber exports to China between the years 2012–2014. [1]

.....
.....

(c) Explain how deforestation in the taiga may impact the world's oceans. [3]

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

(d) State **one** natural limiting factor to the successful restoration of taiga through replanting. [1]

.....
.....



7. (a) Outline the impact that a reduction in the tiger population may have on other populations in the food web shown in **Figure 8(c)**. [2]

.....

.....

.....

.....

- (b) Outline why a reduction in the Siberian tiger's population may increase its probability of extinction. [2]

.....

.....

.....

.....

8. Conservation measures for the Siberian tiger between 1940–2010 involved tagging, setting up reserves, and bans on hunting and trade.
- With reference to **Figures 8(a), 8(d) and 8(e)**, evaluate the relative success of these measures. [3]

.....

.....

.....

.....

.....

.....

9. With reference to **Figures 8(e) and 8(f)**, outline how the decision to remove logging roads in 2015 may benefit the tiger populations. [2]

.....

.....

.....

.....



08EP05

Turn over

A large rectangular area containing 25 horizontal dotted lines, intended for writing.



08EP07

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

Answers written on this page
will not be marked.



08EP08