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**ENVIRONMENTAL MANAGEMENT**

**8291/12**

Paper 1 Lithosphere and Atmosphere

**October/November 2013**

**1 hour 30 minutes**

Additional Materials: Answer Booklet/Paper

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.  
 Write in dark blue or black pen.  
 You may use a soft pencil for any diagrams, graphs, tables or rough working.  
 Do not use staples, paper clips, highlighters, glue or correction fluid.  
**DO NOT WRITE IN ANY BARCODES.**

Electronic calculators may be used.  
 You may lose marks if you do not show your working or if you do not use appropriate units.

**Section A**

Answer **all** questions.  
 Write your answers in the spaces provided on the question paper.

**Section B**

Answer **one** question from this section.  
 Answer the question on the separate answer paper provided.

At the end of the examination,

1. fasten all separate answer paper securely to the question paper;
2. enter the question number from Section B in the grid opposite.

|                  | For<br>Examiner's<br>Use |
|------------------|--------------------------|
| <b>Section A</b> | /                        |
| 1                |                          |
| 2                |                          |
| <b>Section B</b> | /                        |
|                  |                          |
| <b>Total</b>     |                          |

This document consists of **12** printed pages.



## Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

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Use

- 1 (a) Fig. 1.1 shows world energy consumption in terms of different resources between 1985 and 2010.

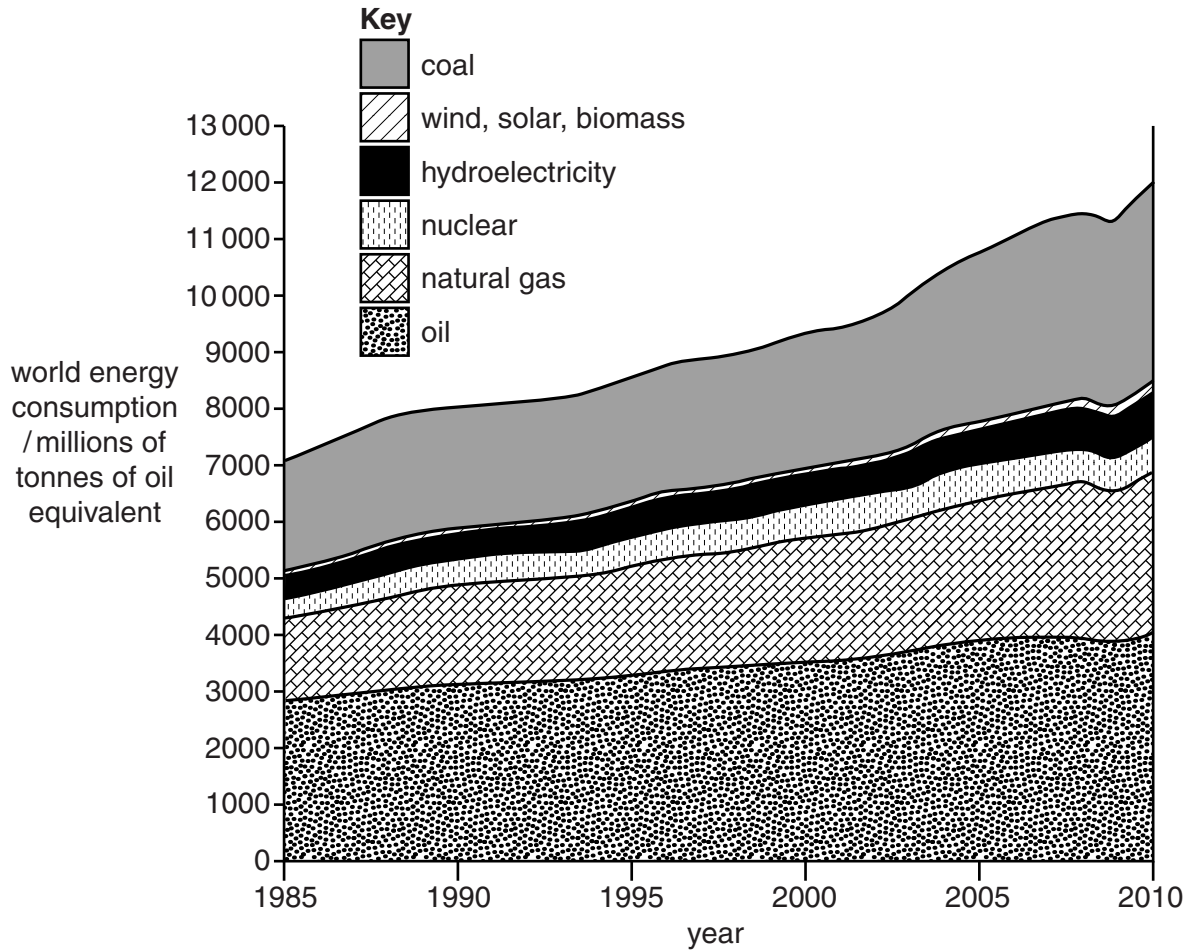


Fig. 1.1

- (i) From Fig. 1.1 name **three** non-renewable resources.

.....[1]

(ii) By how much, in millions of tonnes of oil equivalent, has:

- total energy consumption increased between 1985 and 2010,

.....

- consumption of coal increased between 1985 and 2010?

.....

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.....[3]

(iii) With reference to Fig. 1.1, give reasons for the change in consumption of **one** renewable energy resource and **one** non-renewable energy resource.

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.....[6]

(b) Fig. 1.2 shows percentage energy consumption by resource for France and India in 2006.

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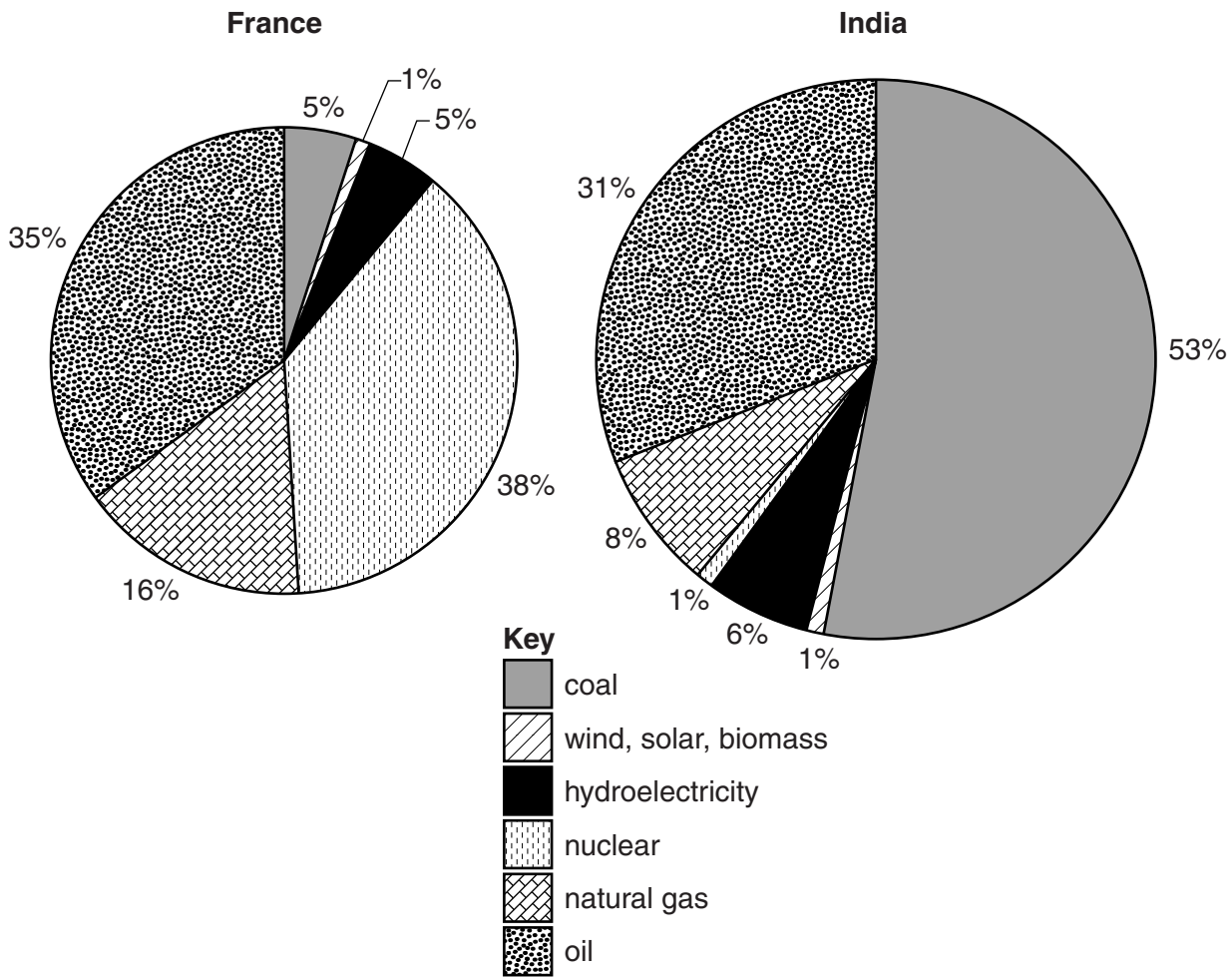


Fig. 1.2

(i) State **two** ways in which the energy consumption of France and India are different. Briefly explain the differences you have identified.

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[5]



2 (a) Fig. 2.1 shows the direction of horizontal and vertical air movement across the Earth.

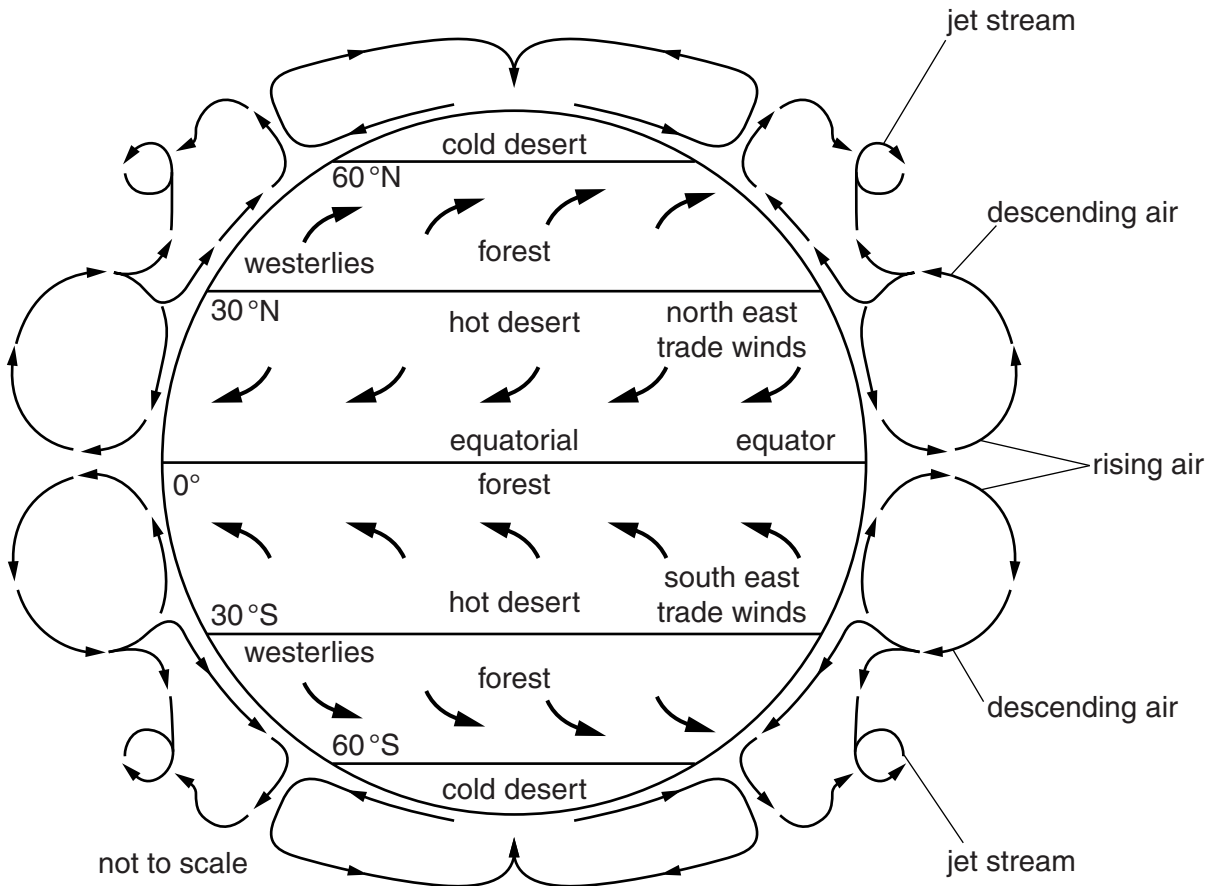


Fig. 2.1

(i) Describe the pattern of horizontal air movement for **either** the northern hemisphere **or** the southern hemisphere between 0° and 60° as shown in Fig. 2.1.

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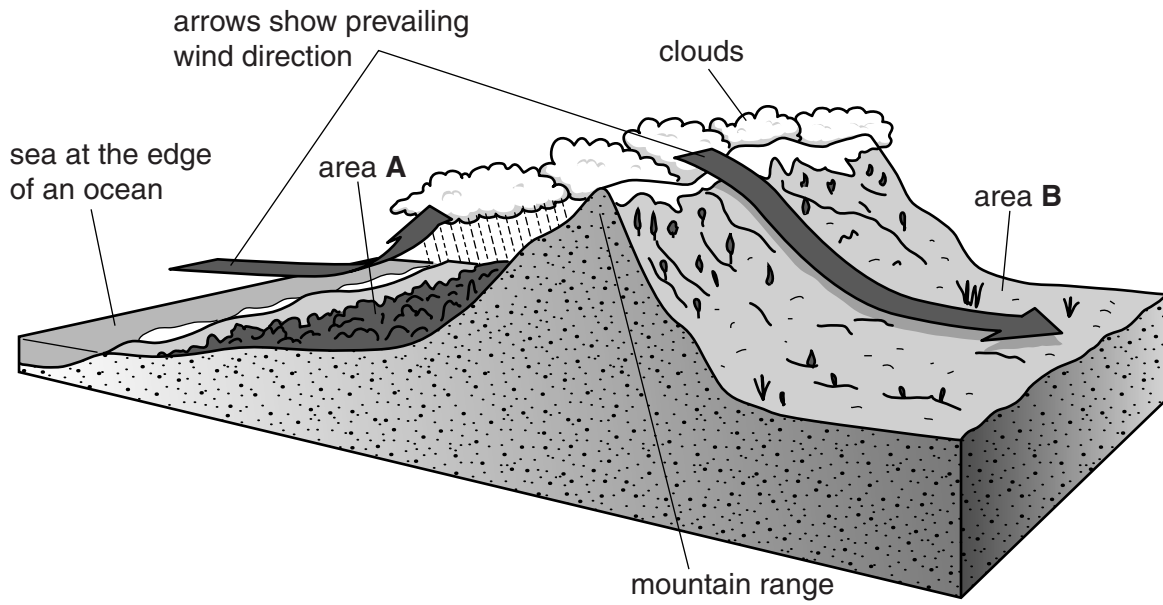
.....

..... [3]



(b) Fig. 2.2 shows a more localised process in which prevailing winds cross a mountain range.

*For  
Examiner's  
Use*



**Fig. 2.2**



(i) Describe and explain the different weather conditions likely to be experienced in areas **A** and **B** in Fig. 2.2.

**A**.....  
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**B**.....  
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..... [8]

(ii) Describe environmental hazards that could occur at each of **A** and **B** as a result of the processes shown in Fig. 2.2.

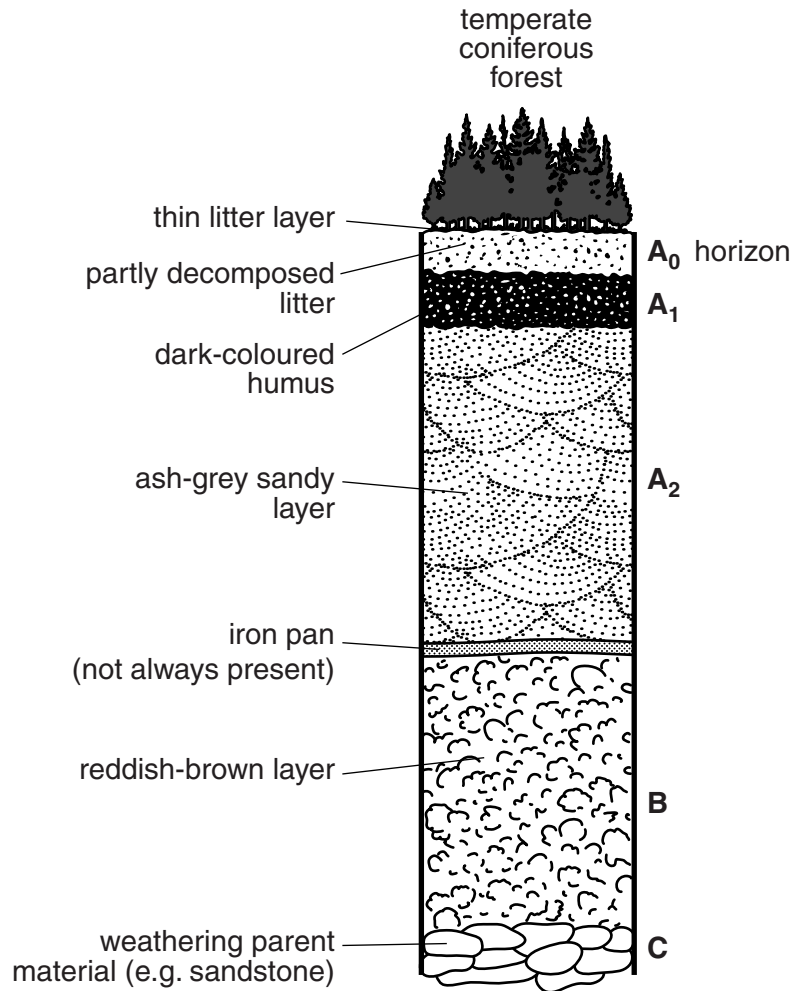
**A**.....  
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.....  
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**B**.....  
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.....  
..... [5]

## Section B

Answer **one** question from this section.

- 3 (a) Fig. 3.1 shows the profile of a podzol soil developed beneath temperate coniferous forest.



**Fig. 3.1**

Briefly explain the role of water and climate in the development of the soil profile shown in Fig. 3.1. [10]

- (b) With reference to both LEDCs and MEDCs, describe how human activity has caused soil degradation. For such circumstances, assess the methods that may be used to ensure that soils are used sustainably. [30]

[Total: 40]

- 4 (a) Fig. 4.1 shows an area of Moscow that suffers from atmospheric pollution.

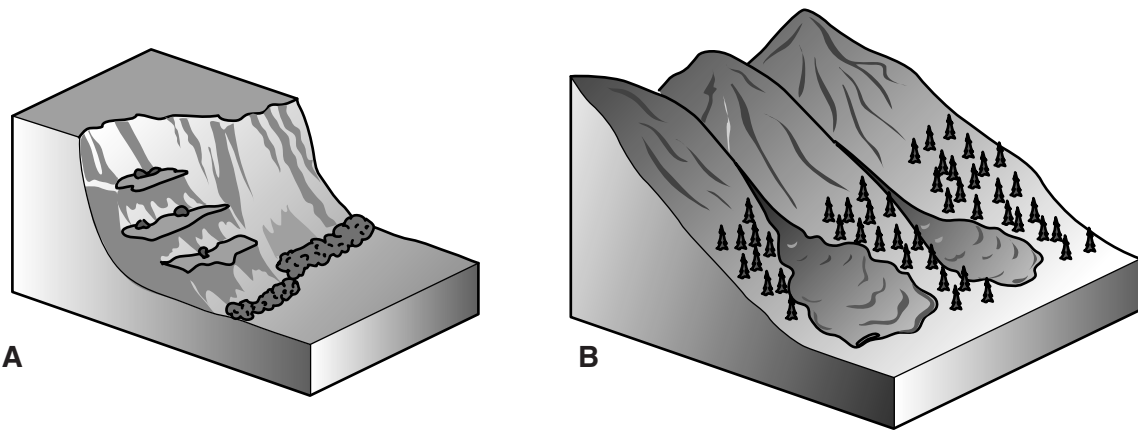


**Fig. 4.1**

- Identify **two** different types of atmospheric pollution that occur in the area shown in Fig. 4.1 and describe the effects they would have upon the nearby urban environment. [10]
- (b) With reference to **one** urban area with which you are familiar, assess the methods that have been used to reduce its atmospheric pollution. [30]

[Total: 40]

5 (a) Fig. 5.1 shows **two** different types of mass movement.



**Fig. 5.1**

Describe and explain the characteristics of the **two** types of mass movement (**A** and **B**) shown in Fig. 5.1. [10]

(b) With reference to examples with which you are familiar, describe and explain the factors that contribute to slope instability. For the examples you have chosen, assess the methods that can be used to maintain slope stability. [30]

[Total: 40]

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*Copyright Acknowledgements:*

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Question 1b © EIA International Energy Annual 2004/6; US Department of Energy.

Question 2a © Global Air Circulation; [www.emc.maricopa.edu](http://www.emc.maricopa.edu).

Question 4 © Atmospheric pollution, January 2006; RIA NOVOSTI / SCIENCE PHOTO LIBRARY; Ref: E810 / 0436.

Question 5 © Mass Movement; [www.scienceclassified.com/landfarms/Faults-to-Mountains/Landslide-and-other-Gravity-Movements.html](http://www.scienceclassified.com/landfarms/Faults-to-Mountains/Landslide-and-other-Gravity-Movements.html).

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