



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2018

Centre Number

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Candidate Number

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Environmental Technology

Assessment Unit AS 1

assessing

The Earth's Capacity to Support
Human Activity



SET11

[SET11]

WEDNESDAY 16 MAY, MORNING

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

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

INFORMATION FOR CANDIDATES

The total mark for this paper is 75.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Question 7.

| For Examiner's use only | |
|-------------------------|-------|
| Question Number | Marks |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |

| | |
|--------------------|--|
| Total Marks | |
|--------------------|--|

| Examiner Only | |
|---------------|--------|
| Marks | Remark |
| | |

1 (a) Fig. 1 below shows the main phases in the generation of electricity from fossil fuels. Identify the forms of energy which have been labelled A and B in the diagram.

A: _____

B: _____ [2]

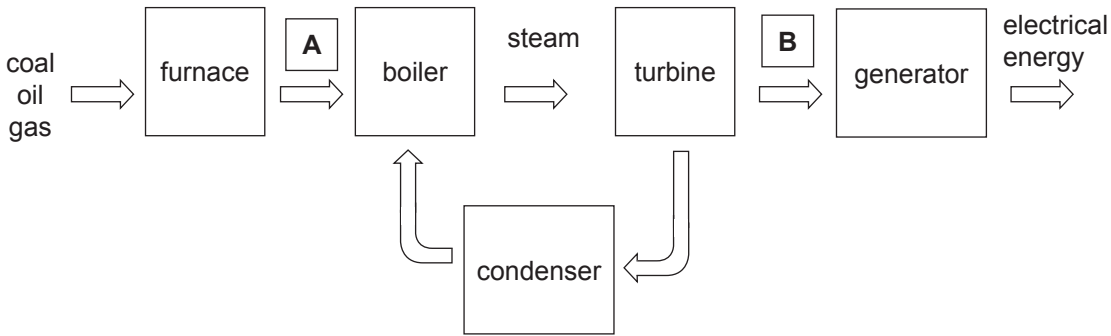


Fig. 1

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(b) With reference to the diagram in Fig. 1 outline the phases which happen between turbine, condenser and boiler.

[2]

2 In 2015 delegates from more than 190 countries gathered in Paris to agree a new global pact on climate change aimed at altering greenhouse gas emissions. Many countries ratified the Paris agreement in 2016.

(a) Explain why countries will have to reduce their use of coal-fired electricity generators in order to alter their greenhouse gas emissions.

[2]

(b) Describe **two** ways in which the global use of fossil fuels impacts on the environment.

1. _____

[2]

2. _____

[2]

| Examiner Only | |
|---------------|--------|
| Marks | Remark |
| | |

(d) Identify the type of Concentrating Solar Power (CSP) system shown in Fig. 3.

_____ [1]



Fig. 3

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(e) Outline how Concentrating Solar Power (CSP) systems may be used in power plants to convert the Sun's energy into electricity.

_____ [2]

| Examiner Only | |
|---------------|--------|
| Marks | Remark |
| | |

(f) Describe any **two** passive solar design techniques that could be applied to the design of a new house.

1. _____

_____ [2]

2. _____

_____ [2]

| Examiner Only | |
|---------------|--------|
| Marks | Remark |
| | |

| Examiner Only | |
|---------------|--------|
| Marks | Remark |
| | |

5 (a) There are significant wind energy resources available in and around Northern Ireland. State **one** main reason why we need good energy storage facilities if we are to make optimum use of the available wind energy resources.

_____ [1]

(b) Fig. 4 below shows a schematic diagram of an energy storage facility.

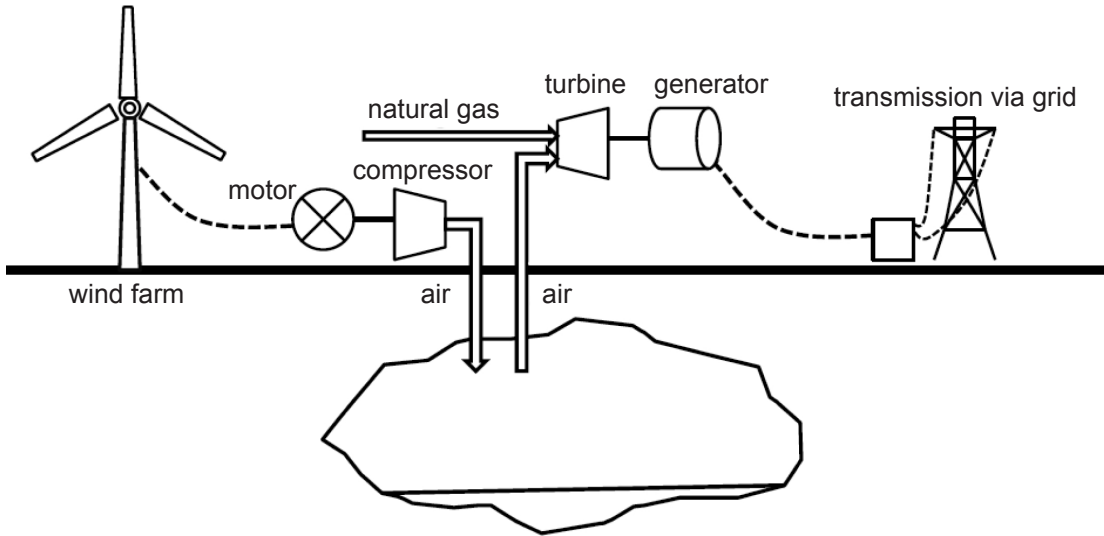


Fig. 4

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(i) Name the type of energy storage facility shown in Fig. 4 above.

_____ [1]

(ii) With reference to Fig. 4 describe how the system operates.

 _____ [4]

(c) State **two** factors that would make a potential location both beneficial as well as cost effective for the type of energy storage facility shown in Fig. 4.

1. _____

2. _____

_____ [2]

(d) Name **one** other type of energy storage facility.

_____ [1]

| Examiner Only | |
|---------------|--------|
| Marks | Remark |
| | |

6 Traditional plastics are manufactured from crude oil. One method used to dispose of these plastics is incineration which can release toxic gases.

(a) List **two** toxic gases that may be released during the incineration of plastics.

1. _____

2. _____ [2]

(b) Assess the need for a global move towards the more sustainable manufacture and use of plastics. Your answer should include **three** different factors.

1. _____

_____ [2]

2. _____

_____ [2]

3. _____

_____ [2]

Examiner Only

Marks Remark

(c) Plastics can be manufactured to be compostable.

Describe **one** agricultural use for compostable plastics.

[2]

| Examiner Only | |
|---------------|--------|
| Marks | Remark |
| | |

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