



T206 Energy for a sustainable future

T206 Guide to 2005 Exam Paper

SECTION A

You should spend about 10 minutes on each Section A question - a total of 80 minutes for all 8 questions. This will give you 10 minutes to check through your answers.

The answers to these question should be quite short, in some cases two or three lines on each part of the question is sufficient.

When answering calculation questions you should make it clear how you arrived at the answer.

Question 1

There are four keywords that tell you exactly what is expected from this question. What are they? (Hint look at the guidance on essay questions under SECTION B below)

How do you think the marks will be allocated? How will this affect the way you will answer this question.

Question 2

Calculation question - see separate spreadsheet.

Extending the table by adding extra columns might be a useful way of answering the question, but make sure you show just how you have calculated the values in the extra columns.

Question 3

Three parts. How do you think the marks might be allocated?

Identify the keywords in each part that tell you what is required in answering the question.

Question 4

Identify the words and expressions that tell you what is required. What is absolutely essential in your answer to this question?

Question 5

Two definitions and a calculation. Refer to spreadsheet.

Question 6

Calculation. Refer to spreadsheet. Again extending the table is a possibility - add rows not columns for ease of reading

Question 7

How might the marks be divided in this case?

What are the keywords that tell you what is needed in each part?

Question 8

What are the keywords that tell you what is needed in this case?

What is the significance of the plurals in "advantages and disadvantages"

SECTION B

You have to answer two questions in this section. Aim to spend about 40 minutes on each question. This will give you about 10 minutes to read through and check each answer.

Essay Questions can usually be divided into one of three types. The words used in the title give a clue to what is needed

- ◆ A factual account - will contain words like describe, explain, illustrate in the title.
- ◆ Making a case - discuss, evaluate, analyse.
- ◆ Making comparisons. This is a variant of making a case - will contain words like compare, contrast, distinguish.

Read the questions and try to identify the type of essay, then draw up an outline plan for an answer.

If the essay is to make a case, then consider the approach to a plan in this way

1. Use a table or spider diagram to identify points for and against.
2. If a comparison is involved you will probably have to identify for and against for each option.
3. Rank the points for and against in order of importance: 1, 2, 3...
4. For each point add brief notes on the material it will contain and your discussion of them.
5. Decide on an order for your material. Should you deal with all the points for followed by the points against or should you alternate the points for and against?
6. Decide on your conclusion
7. Consider if the flagging the reader will need to help them follow your argument. Make it clear whether you are citing evidence, drawing a reasoned conclusion or putting a counter argument by using phrases such as
 - ◆ This clearly demonstrates that...
 - ◆ It has been argued that...
 - ◆ Evidence seems to point to...
 - ◆ On the other hand...
 - ◆ However, this conflicts with...
 - ◆ There is a widely held view that...
8. Check your plan and write your essay.

Example

An outline of a plan for Question 9.

An ageing 1000 MW coal-fired power station is due for closure, and its role in the National Grid makes a replacement necessary. The two options being considered are a modern coal-fired plant, with carbon sequestration, and a nuclear plant. The location is close to the site of a major coal mine, now closed, and there are suggestions that this might be developed for carbon sequestration or for nuclear waste storage.

Write a paper discussing the relative merits of the two options. It should consider the technical, economic, environmental and social aspects and will be addressed to the public at large. However, the views of the local population will be particularly important, and emphasis should be given to their likely concerns.

Before starting the plan, note carefully the wording of the question. The second paragraph is the key and there are a number of clues as to what is required.

- ◆ You are asked to “discuss” so you are being asked to make a case
- ◆ The keywords telling you what the examiner is looking for are *technical, economic, environmental and social aspects* and *emphasis should be given to their likely concerns*
- ◆ The next part of the question tells you what style to adopt – one aimed at a non technical reader

In drawing up your plan, you should make sure you have included at least one each of technical, economic, environmental and social aspects and that you identify and explicitly mention major public concerns. A plan might look like this

Technology		For	Against
Coal fired	Technical:	Proven technology	But CSS not yet proven
	Economic:	Shorter construction time, lower running costs	CSS adds to generating costs
	Environmental:	CSS will minimise emissions, old mine available for CO ₂ storage	Potential for pollution by acid gases (SO ₂ , NO _x)
	Social:	Already power station on site	Public concerns about pollution
Nuclear	Technical:	Proven Technology	Highly complex technology
	Economic:	Low running costs	High construction costs, v. long construction time
	Environmental:	Low CO ₂ emissions possible waste storage facility available	Waste disposal a major problems, containment of radioactivity
	Social:	Public get used to its presence once built?	Public concerns about safety and waste – storage in old mine will be highly controversial!!!

Notes: I have tried to ensure there is at least one item under each heading. Sometimes the same item will have an under two headings. That is fine, but you need to then deal with the concerns appropriately.

The question says “discuss the merits” so as long as you do that you should get most of the marks. However the scenario described in the preamble to the question (first paragraph) suggest that it would be a good idea to make a definite recommendation at the end. This should be supported by a summing up of the evidence in your concluding paragraph.

Using past exam papers in revision

It is worth attempting the short answer questions in full, especially the calculations.

It is worth producing a plan for each of the long answer questions. This way you identify the key points in each question. Use your textbooks and study guide to check your plans and ensure nothing major has been missed

Attempt at least one question in full and time yourself so that you know how much you can write in the time available. Your answers to essay questions will not be as long as those in your TMAs as you do not have the books to consult and you only have limited time to produce an answer.