UNIT 9 GLOBAL WARMING

Reading *You are advised to spend about 20 minutes on questions 1-15.*

Part 1

Questions 1-3

Answer these questions using Reading Passage 1.

1 Which ONE word from the text best describes the layer of gases around the earth?

Your answer _____

2 What are the two main greenhouse gases mentioned?

_____ and _____

3 'But one thing is clear – it will be no picnic' (paragraph 3). What is the purpose of this sentence? Choose the purpose from the four listed below, and write **A, B, C** or **D** in the space provided.

A to identify a specific problem
B to give a warning
C to provide evidence for an earlier idea
D to serve as an example

Your answer
_____

Reading Passage 1

The Greenhouse Effect

The greenhouse effect is not a new phenomenon. Scientists have known for centuries that a layer of gases naturally surrounds the earth like an insulating blanket, trapping the reflected energy of the sun and preventing it from escaping into space. That is what makes the earth warm enough for people, plants and animals. However, recent human activity has boosted concentrations of greenhouse gases and enhanced their heat-trapping ability. The main culprit is carbon dioxide (CO_2), which scientists estimate accounts for nearly half of global warming. CO_2 is released from burning fossil fuels (coal, oil and gas) and from clearing and burning forests.

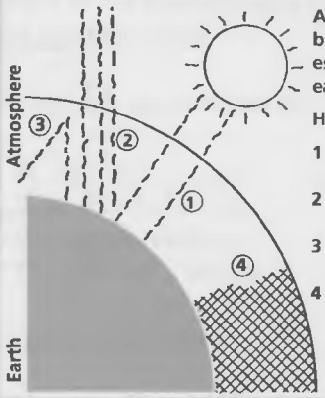
There are other important greenhouse gases too and they cannot be ignored – CFCs for example may account for 25 per cent of global warming in the next century if their production is not scaled back. But carbon dioxide is the pivotal one. The UN International Panel on Climatic Change now says that CO_2 levels could double within 40 years if present rates of fossil-fuel burning and deforestation continue. That could mean an average temperature increase between two and four degrees centigrade and a sea-level rise of perhaps a foot by 2050.

No-one knows for certain how local weather will change as a result of this warming. But one thing is clear – it will be no picnic. Indications are that the earth will be warmer than at any time since the start of the last ice age nearly 10 0000 years ago. But there's one major difference. This temperature increase will take place not over thousands of years, but over decades. And it is the speed of the change which makes the precise impact so difficult to predict.

The most sophisticated computerized climate models, in the US and Britain, agree that weather around the world will become more erratic and more extreme. In general, temperatures will rise more towards the poles than at the equator. Overall rainfall will also increase as higher temperatures boost evaporation from the seas. But the distribution of precipitation will shift. Some areas will become wetter, others will be drier. In middle latitudes, climate zones will march pole-wards, Saskatchewan may become like Kansas, southern England like southern France. In tropical and sub-tropical parts of the Third World warming will be less but the impact on a relatively stable climate will be greater. Tropical storms and droughts could both increase. The pattern of the monsoons may shift.

Global warming will also cause ocean levels to rise – though not, as popular wisdom has it, due to the Antarctic ice cap melting. If this catastrophe occurs it will not be for at least another century. Instead sea levels will rise simply because water expands as it warms. People living in low-lying coastal regions from New York and London to Jakarta and Dacca will be in danger. The world's great river deltas, home to millions in Asia and Latin America and containing some of the Third World's richest food-growing land, could become brackish graveyards.

The Greenhouse Effect



A layer of gases in the atmosphere acts like an insulating blanket trapping solar energy that would otherwise escape into space. Without these 'greenhouse gases' the earth would be frozen, barren and lifeless.

HOW IT WORKS

1 Solar energy enters the atmosphere unaffected by greenhouse gases.
2 The sun's rays are absorbed by the earth, then reflected back at longer heat wavelengths.
3 Greenhouse gases absorb this heat, then send it back to the surface.
4 When greenhouse gas concentrations increase, more heat is captured causing temperatures in the lower atmosphere and surface to rise. This affects both weather and climate.

Questions 4 - 15

The passage below is a SUMMARY of Reading Passage 1. Complete this summary by writing ONE or TWO words in each space. These words must be taken from the reading passage. The first one has been done as an example.

It has long been known that earth is **(Example)** to support life because of an ___4___ layer of greenhouse gases which trap the sun's ___5___. Recently, increased production of one of these gases, ___6___ by mankind's ___7___ of wood and fossil fuels, has been the main cause of ___8___. If the ___9___ of CO_2 continue to increase both temperature and ___10___ could rise significantly by 2050. The ___11___ of this change has made predictions about the effect on the world's ___12___ uncertain. However, computers forecast greater unpredictability and a more ___13___ climate. And with the temperature rise will come a corresponding expansion of ___14___ and rising sea-levels, threatening ___15___ cities and fertile land alike.

Your answers

Example: warm enough

4 _____
5 _____
6 _____
7 _____
8 _____
9 _____
10 _____
11 _____
12 _____
13 _____
14 _____
15 _____

Part 2

You are advised to spend about 15 minutes on questions 16-25.

Reading Passage 2

Impact of global warming on climate

1 But there are also hidden factors which scientists call 'feedback mechanisms'. No-one knows quite how they will inter-act with the changing climate. Here's one example: plants and animals adapt to climate change over centuries. At the current estimate of half a degree centigrade of warming per decade, vegetation may not keep up. Climatologist James Hansen of the US space agency NASA predicts climate zones will shift toward the poles by 50 to 75 kilometres a year – faster than trees can naturally migrate. Species that find themselves in an unfamiliar environment will die. The 1000-kilometre-wide strip of coniferous forest running through Canada, Russia and Scandinavia could be cut by half, setting in motion a chain reaction. Millions of dying and diseased trees would soon lead to massive forest fires, releasing tons of CO_2 and further boosting global warming.

2 There are dozens of other possible 'feedback mechanisms'. Higher temperatures will fuel condensation and increase cloudiness, which may actually damp down global warming. Others, like the 'albedo' effect, will do the opposite. The 'albedo' effect is the amount of solar energy reflected by the earth's surface. As northern ice and snow melts and the darker sea and land pokes through, more heat will be absorbed, adding inexorably to the global temperature increase.

3 Scientists continue to tinker away with their computer models, but the bare-bones facts are clear. Even if we were to magically stop all greenhouse-gas emissions tomorrow the impact on global climate would continue for decades. Delay, any delay, will simply make the problem worse. The fact is that some of us are doing quite well the way things are. In the developed world prosperity has been built on 150 years of cheap fossil fuels. Oil fires cars and powers industry, coal generates electricity and indirectly runs TVs, dishwashers and VCRs. Gas heats water and warms homes and factories.

4 Material progress has been linked to energy consumption. Today 75 per cent of all the world's energy is consumed by a quarter of the world's population. The average rich-world resident adds about 3.2 tons of CO_2 yearly to the atmosphere, more than four times the level added by each Third World citizen. India, China and Brazil, which make up nearly half the world's population, accounted for barely 15 per cent of global warming during the 1980s, according to the US Environmental Protection Agency. The US, with just seven per cent of the global population, is responsible for 22 per cent.

Questions 16-19

Answer these questions using Reading Passage 2.

Choose which of the alternatives is the correct answer and put the appropriate letter in the space provided.

Example: Feedback mechanisms are:

Your answers

A statistics.
B concealed causes.
C known results.
D scientific methods. B

16 In paragraph 1 the writer is:

A rejecting a scientific belief.
B giving an example.
C reaching a conclusion.
D defending a theory. _____

17 If greenhouse gas emissions were stopped immediately, the world's climate:

A would soon regain its balance.
B would continue to be affected but without serious consequences.
C would continue to be affected for many years to come.
D would be affected for another 10 years. _____

18 According to the writer cheap fossil fuels have:

A formed the basis of the developed world's success.
B contributed to the developed world's success.
C aided the developed world's building trade.
D caused 150 years of global warming. _____

19 A person from a developing country:

A adds more than 3 tons of CO_2 yearly to the atmosphere.
B adds about 12.8 tons of CO_2 yearly to the atmosphere.
C adds 4 tons of CO_2 yearly to the atmosphere.
D adds less than a ton of CO_2 yearly to the atmosphere. _____

Questions 20-25

Refer to Reading Passage 2. Show whether, **according to the text,** the following statements are true or false by circling **A** for True or **B** for False. If the passage does not say, circle **C**.

Statement	True	False	Does not say
20 James Hanson predicts that the shift in climate zones will be accompanied by a successful migration of trees.	A	B	C
21 Some factors may slow global warming.	A	B	C
22 The 'albedo effect' is measured in units of temperature.	A	B	C
23 The basic facts of global warming are unknown.	A	B	C
24 The developed world has decided to reduce its energy consumption.	A	B	C
25 The statistics in the last two sentences were supplied by the US Environmental Protection Agency.	A	B	C

Part 3

Reading Passage 3

Turning Up the Heat in the Greenhouse

For a country that produces more than 20 per cent of the planet's greenhouse gases, the United States **(Example)**. But in a report a National Academy of Sciences panel warned that using the atmosphere as an industrial sewer could send temperatures soaring 2 to 9 degrees Fahrenheit in the near future – and called for measures that would **26**. Says Yale University economist and panel member William Nordhaus, 'It is worth making modest investments today to slow climate change and prepare for it.'

How? The panel recommended phasing out chloro-fluorocarbons, **27**. Next comes energy efficiency. Replacing standard light bulbs with compact fluorescents that are more efficient and raising miles-per-gallon standards for new cars would more than pay for themselves – and cut the use of fuels that emit greenhouse gases. It urged lawmakers to raise energy prices, impose more efficient building codes, increase support for mass transit and **28**. And it called on Americans to prepare for the side effects of a changing climate, for example by reducing the amount of wasted water, **29**.

While they applauded the report, the environmentalists worried that its recommendations would meet with stiff resistance from the White House. Moreover, many scientists continue to doubt that global temperatures are rising at alarming rates – **30**. Panel Member Jessica Tuchman Mathews, vice president of the World Resources Institute, concedes that the science of measuring climate changes **31**. 'But when there's the potential for irreversible consequences,' she says, 'we have to act.' The question is whether the findings will be acted on, or just add to the hot air.

You are advised to spend about 15 minutes on questions 26-31.

Questions 26-31

Look at Reading Passage 3. Seven phrases have been left out. Decide which phrase from the list **A-I** below should go in each gap and write the letter in the space provided. Note that there are more phrases than gaps.

The first one has been done as an example.

A boost efficiency standards for electrical appliances.

B reduce temperatures by a similar amount.

C the chemicals that both destroy the ozone layer and heat the atmosphere.

D or even that the earth is warming at all.

E has been slow to do much about global warming.

F a major cause of the rise in sea-level.

G is imprecise.

H cut greenhouse emissions 10 to 40 per cent with minimal cost to the economy.

I which could become scarcer in the years ahead.

Your answers

Example: E

26 _____

27 _____

28 _____

29 _____

30 _____

31 _____