Coal and Petroleum
Competency based Questions

Q.1 How can we save petrol and diesel while driving?
Q.2 Can fossil fuels be prepared in the laboratory? If not, Why?

Q.3The following Table shows the total power shortage in India from 1991 – 1997. Show the data in the form of a graph. Plot shortage percentage for the years on the Y-axis and the year on the X-axis.

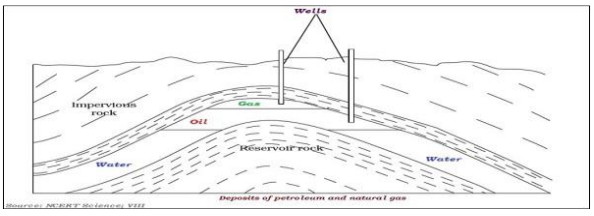
S. No.	*Year*	*Shortage* (%)
1	1991	7.9
2	1992	7.8
3	1993	8.3
4	1994	7.4
5	1995	7.1
6	1996	9.2
7	1997	11.5

Q.4.In a village people burn wood and cow dung as a fuel for basic necessity. In other nearby village, they have a big biogas plant in which bio-waste is used to prepare biogas. If we compare the situation of both villages, which practice will you prefer as the best and why?

Q.5.You are provided with a mixture of petroleum and water. Can you suggest a method to separate the two?

Q.6. We read in newspaper that burning of fuels is a major cause of global warning. Explain Why?

Q.7. Look at the following figure where petroleum and natural gas deposits are shown. Why do we find oil layer above water layer?



Q.8. Fill in the blanks and complete the story

About 300 million years ago the earth had dense (i)…… in low lying wetland areas. Due to natural processes, like (ii)…….. these forests got buried under the (iii) ……As more (iv)…….deposited over them, they were compressed. The (v)…… also rose as they sank deeper and deeper, Under high (vi)…….and high (vii)…… dead plants got slowly converted into coal.

Q. 9. DUTCHMAN USES CORN AS FUEL

Auke Ferwerda's stove contains a few logs burning quietly with low flames. From a paper bag next to the stove he takes a handful of corn and puts it onto the flames. Immediately the fire flares up brightly. "Look here," Ferwerda says, "The window of the stove stays clean and transparent. Combustion is complete." Ferwerda talks about the fact that corn can be used as fuel as well as cattle food. As far as he is concerned, this is the future. Ferwerda points out that corn, in the form of cattle food, is in fact a type of fuel too. Cows eat corn to get energy out of it. But, Ferwerda explains, the sale of corn for fuel instead of for cattle food might be much more profitable for farmers.Ferwerda has become convinced that, in the long run, corn will be widely used as fuel. He imagines what it will be like harvesting, storing, drying and packing the Ferwerda is currently investigating whether the whole corn plant could be used as fuel, but this research has not been completed yet.In Ferwerda's view, however, there is nothing wrong with carbon dioxide. On the contrary, he argues, plants absorb it and convert it into oxygen for human beings.However, Ferwerda's plans may clash with those of the government, which is actually trying to reduce the emission of carbon dioxide. Ferwerda says, "There are many scientists who say that carbon dioxide is not the main cause of the Greenhouse effect."

QUESTION 9.1

Ferwerda compares corn used as fuel to corn used as food.

The first column of the table below contains a list of things that happen when corn burns. Do these things also happen when corn works as a fuel in an animal body? Circle Yes or No for each.

When corn BURNS:	Does this also happen when corn works as a FUEL in an animal body?
Oxygen is CONSUMED.	Yes / No
Carbon dioxide is PRODUCED.	Yes / No
Energy is PRODUCED.	Yes / No

QUESTION 9.2

In the article a conversion of carbon dioxide is described: "…plants absorb it and convert it into oxygen …".

There are more SUBSTANCES involved in this conversion than carbon dioxide and oxygen only. The conversion can be represented in the following way:

carbon dioxide + water A oxygen + ☐

Write in the box the name of the missing SUBSTANCE.

QUESTION 9.3

At the end of the article Ferwerda refers to scientists who say that carbon dioxide is not the main CAUSE of the GREENHOUSE effect.

Karin finds the following table showing the relative GREENHOUSE effect CAUSED by FOUR gases:

Relative GREENHOUSE effect per MOLECULE of gas			
Carbon dioxide	ftetha ne	NITROUS oxide	CHLOROFLUOROC ARBONS
1	30	160	17 000

From this table Karin cannot CONCLUDE which gas is the main CAUSE of the increase of the GREENHOUSE effect. The data in the table need to be combined with other data for Karin to CONCLUDE which gas is the main CAUSE of the increase of the GREENHOUSE effect.

Which other data does Karin need to collect? Data ABOUT the origin of the FOUR gases.

A. Data ABOUT the absorption of the FOUR gases by plants.

B. Data ABOUT the size of each of the FOUR types of MOLECULES.

Data ABOUT the AMOUNTS of each of the FOUR gases in the atmosphere