Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Q1.

Everyone is exposed to background radiation. Some of this radiation comes from natural sources.
(a) (i) One example of a source of background radiation that does not occur naturally is radiotherapy.
State **one** other source of background radiation that does not occur naturally.

(1)

.....

.....

(ii) Radon gas is a natural source of background radiation.

In some parts of the country, a lot of the background radiation comes from radon gas.

Explain why there is no radon gas in some other parts of the country.

(2)

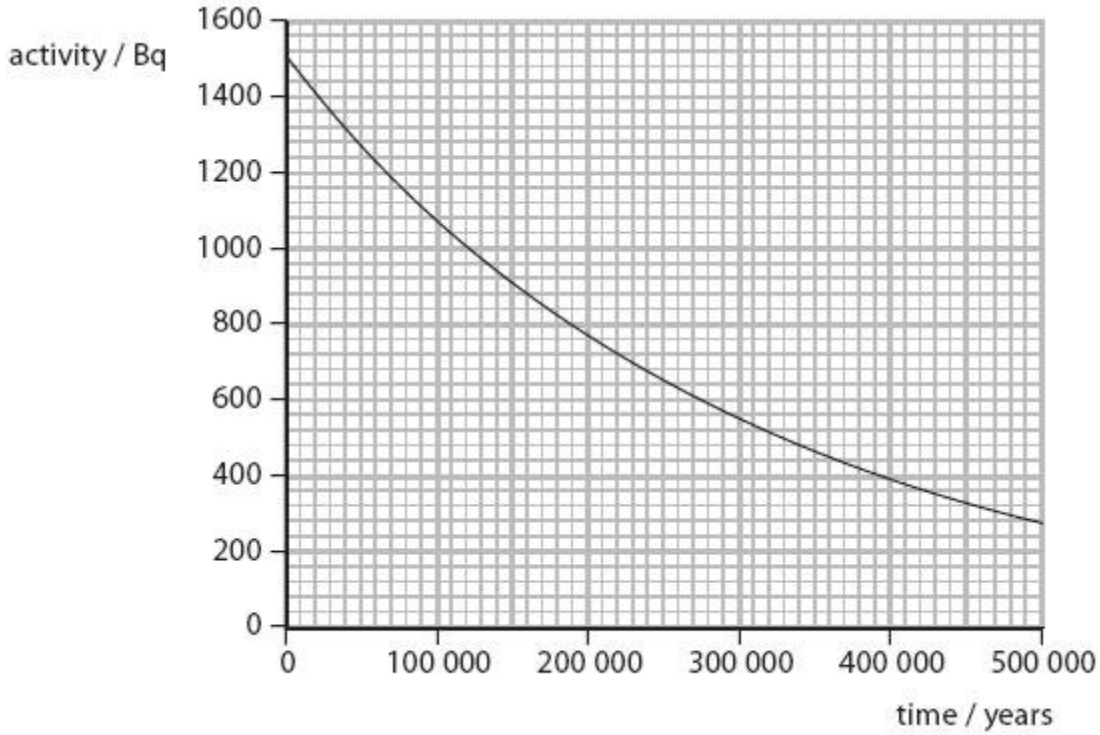
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(b) Technetium-99 is one of the radioactive isotopes in nuclear waste.
The graph shows the decay curve for technetium-99.



(i) Use the graph to show that the half-life of technetium-99 is about 200 000 years.

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(2)

(ii) Technetium-99 emits beta particles.

Give **one** reason that beta particles can cause harm to people.

(1)

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.....

*(c) There are many radioactive isotopes in nuclear waste.

Technetium-99 is just one of these isotopes.

People are worried about how we should deal with nuclear waste.

Explain why it is difficult to deal with nuclear waste safely.

(6)

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(Total for Question is 12 marks)

Q2.

State **two** non-renewable energy sources.

(2)

1 .....

2 .....

(Total for question = 2 marks)

Q3.

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Figure 10 shows all the energy sources used in Canada in 2014 and a prediction for 2040.

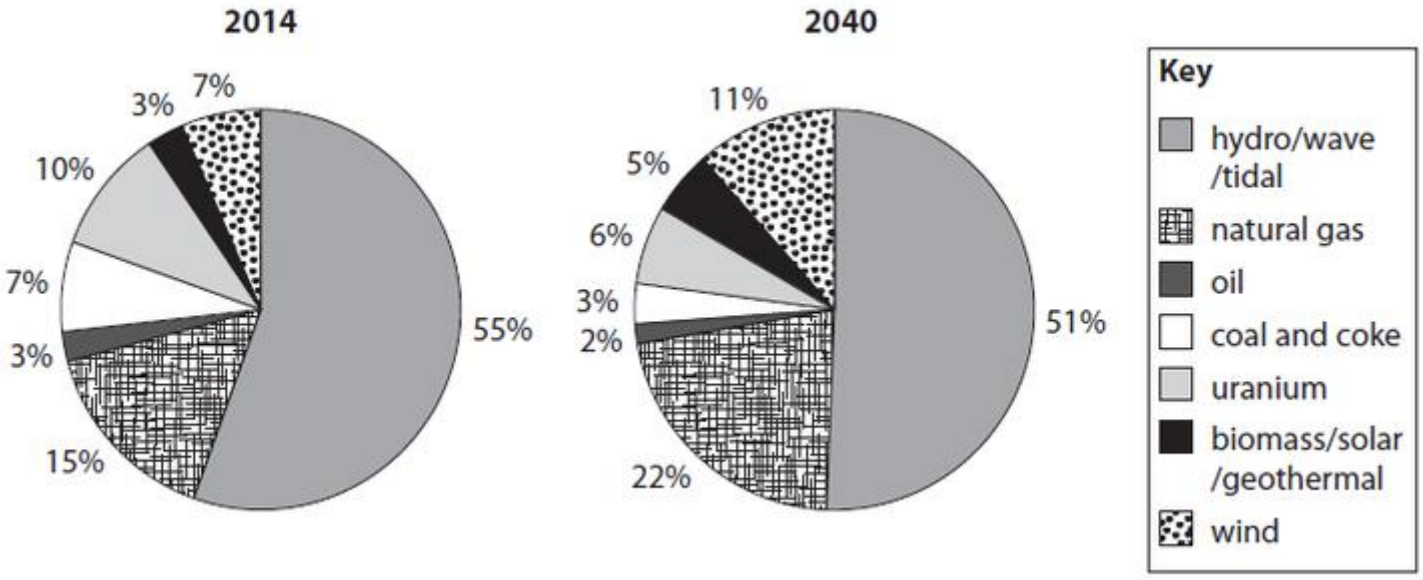


Figure 10

Discuss the effects on the environment of two predicted changes between 2014 and 2040.

(4)

change 1

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effect on the environment

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change 2

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.....

effect on the environment

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.....

(Total for question = 4 marks)

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