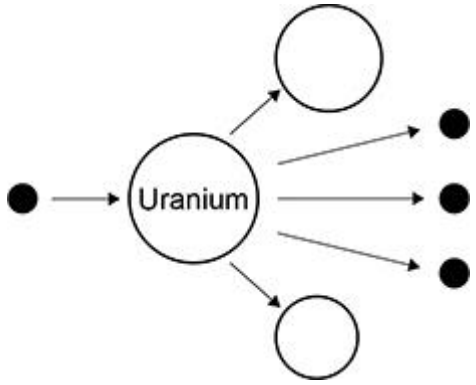
Questions are for separate science students only

Q1.

The process of nuclear fission is used in nuclear power stations.

The figure below shows the process of nuclear fission. **(Physics only)**



(a) Complete the sentences.

Choose answers from the box.

electrons	**gamma rays**	**neutrons**	**nuclei**	**protons**

In nuclear power stations, energy is released from uranium

_____ .

The uranium in above figure splits into two parts and releases three

_____ .

The process of nuclear fission releases electromagnetic radiation in the form of

_____.

(3)

Use the Physics Equations Sheet to answer parts (a) and (b).

(b) Write down the equation which links energy (*E*), power (*P*) and time (*t*).

_____

(1)

(c) A nuclear power station has a power output of 500 MW.

Calculate the energy output in 3600 s.

Give your answer in J.

Energy output = _____ J

(3)

(d) Radioactive waste produced by nuclear power stations has a long half-life.

Suggest **one** precaution taken to reduce the hazard caused by radioactive waste from power stations.

(1)

(e) Nuclear power stations do **not** generate electricity every day of the year.

One nuclear power station generated electricity for 92% of a year.

one year = 365 days

Calculate the number of days during the year that the nuclear power station generated electricity.

Number of days = _____

(2)

(Total 10 marks)

Q2.

(a) The process of nuclear fission takes place in nuclear power stations.

The process of nuclear fusion takes place in the Sun.

Draw **one** line from each process to its fuel. **(Physics only)**

Process	Fuel
	Hydrogen
Nuclear fission	
	Iron
	Lead
Nuclear fusion	
	Uranium

(2)

(Total 2 marks)