Centre No.				Paper	Referer	nce (cor	nplete l	pelow)		Surname	Initial(s)
Candidate No.							/	5	P	Signature	

Paper Reference(s)

5648/5P 5668/5P

# **Edexcel GCSE**

Science: Double Award B (1536)

**Physics B (1549)** 

(Modules 11 and 12)

Paper 5P

# **Higher Tier**

Thursday 16 June 2005 – Morning

Time: 30 minutes

Materials required for examination

Items included with question papers

Nil

#### **Instructions to Candidates**

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature, and complete the paper reference.

Answer ALL questions in the spaces provided in this question paper.

Show all stages in any calculations and state the units. Calculators may be used.

Include diagrams in your answers where these are helpful.

### **Information for Candidates**

The marks for the various parts of questions are shown in round brackets: e.g. (2). There are 5 questions in this question paper. The total mark for this paper is 30. There are 8 pages in this question paper. Any blank pages are indicated.

#### **Advice to Candidates**

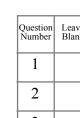


This symbol shows where the quality of your written answer will also be assessed.

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Total



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**(1)** 

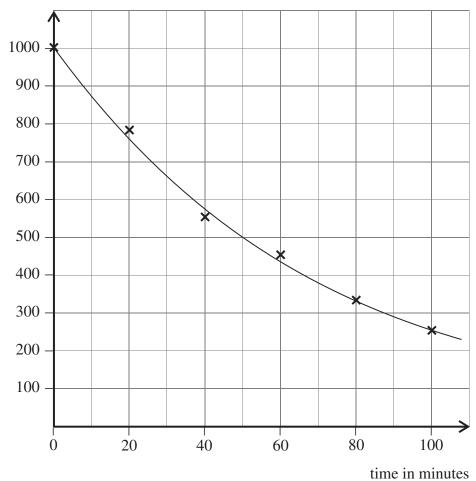
## Answer ALL the questions. Write your answers in the spaces provided.

1.	(a)	What is meant by the term <b>radioactive half-life</b> ?

(b) A teacher did an experiment to find the half-life of a radioactive isotope. She measured the activity of the isotope with a Geiger-Müller tube and a counter.

The graph shows her results.

activity in counts per minute

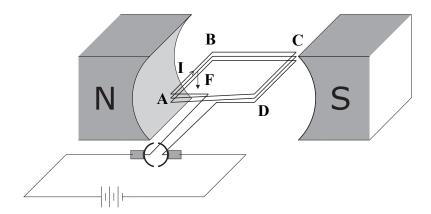


Use the graph to find the half-life of the isotope.


**(2)** 

-	uclear power station has been dismantled.
•	Scientists find that the ground contains radioactive waste.
•	They discover that the half-life of the radioactive isotope in the ground is 30 years.
•	A sample of the waste has an activity of 8 Bq.
•	Builders hope that the ground will be completely safe after 60 years.
(i)	What activity would the sample have after 60 years?
	(1)
(ii)	Explain why people may not want to live in houses built where the nuclear power station used to be, even after 60 years.
	(2)
	(Total 6 marks)

The diagram shows part of an electric motor connected to a battery. The current I is marked along side AB. The force F is also marked on side AB.



- (a) On the diagram add:
  - (i) an arrow showing the direction of the current on side CD of the coil label this current X,
  - (ii) an arrow showing the direction of the force on side CD of the coil label this force Y.

**(2)** 

(b)	Describe changes that could be made to the equipment that would make the mo	otor
	spin in the opposite direction.	

(3)		

(c) The motor is connected to a 6 V battery. The current carried by the wire is 0.5 A. Calculate the electrical power supplied to the motor. State the unit.

**(3)** 

Q2

(a)	Explain how the gas exerts a pressure on the container.	
(4)	Zinpium now the gus exerts a pressure on the container.	
		••
		••
	(3	 3)
<b>(1.)</b>		
(b)	One gram of gas was stored in a container. The volume was $200 \text{ cm}^3$ and the pressure was $5.0 \times 10^5 \text{ Pa}$ .	
	The same mass of the gas was also placed in a second container.	
	The volume was 960 cm <sup>3</sup> . Both gases were at the same temperature.	
	$P_1 \times V_1 = P_2 \times V_2$	
	Calculate the pressure of the gas in the second container.	
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••••	
	(2)
o) An	electric motor is used to lift 500 kg of bricks 3.0 m vertically as shown.
	motor — pulley
	bricks
	2.0
	3.0 m
(i)	Calculate the increase in the gravitational potential energy of the bricks. The
	gravitational field strength is 10 N/kg.
	gravitational field strength is 10 N/kg.
(ii)	gravitational field strength is 10 N/kg.
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(ii)	gravitational field strength is 10 N/kg.
(ii)	gravitational field strength is 10 N/kg.

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5.	Sou	nd waves can be diffracted.	
	(a)	How is the frequency of a wave calculated from its wavelength and speed?	
		frequency =	
		(1)	
	(b)	Explain why the open door of a music room diffracts lower frequency sounds more than higher frequency sounds.	
		(You may choose to draw a diagram to help your explanation.)	
			Q5
		(Total 3 marks)	
		TOTAL FOR PAPER: 30 MARKS	
		END	

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