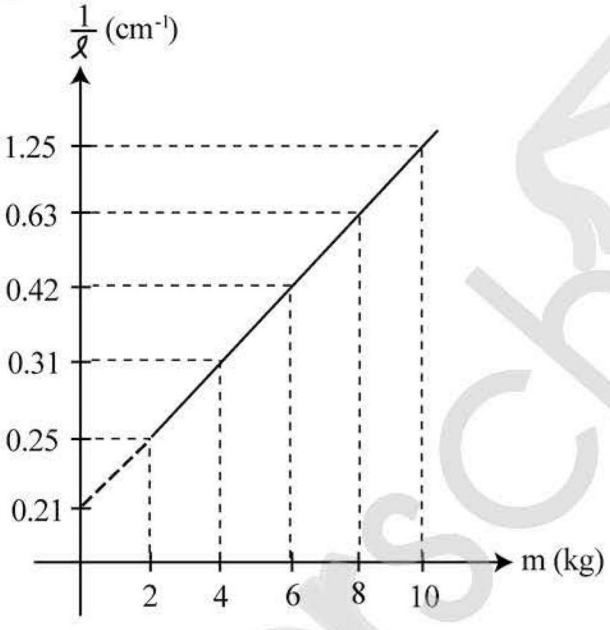
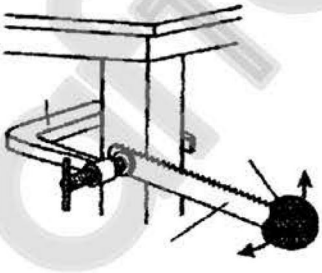
Physics ***Paper 3***

1(a) (i)	(a)(i) mass/*jisim*	1
(ii)	(ii) length of air column/*panjang turus udara*	1
(iii)	(iii) mass of trapped air/*jisim udara terperangkap*	1
(b)	(b) 0.25 , 0.31 , 0.42 , 0.63 , 1.25	5
(c)	(c)  	5
(d)	$\frac{1}{l} = 0.21$ $l = \frac{1}{0.21}$ $= 4.8$ cm	2
(e)	as m increases, 1/*l* increases. *bila m bertambah,*1/*l bertambah.*	1
	Total	**16**

2 (a)	12N	2
(b)	10 cm	2
(c)(i)	1.78 N cm^{-1}	4
(ii)	F=kx=(1.78)(4.5)=8.01N	3
(d)	Parallax error should be avoided when reading the length of the spring. *Ralat paralaks perlu dielakkan ketika membaca panjang spring.*	1
	Total	**12**
3(a)	Inertia is affected by mass *Inersia dipengaruhi oleh jisim*	1
(b)	The greater the mass, the higher the inertia. *Semakin jisim bertambah, semakin besar inersia.*	1
(c)(i)	To investigate the relationship between mass and inertia. *Untuk menyiasat hubungan antara jisim dan inersia*	
(ii)	manipulated variable : mass, m *pembolehubah dimanipulasikan : jisim, m* responding variable : period of oscillation, T *Pembolehubah bergerak balas : tempoh ayunan, T* fixed variable : length of jigsaw blade *Pembolehubah dimalarkan, panjang bilah gergaji*	
(iii)	jigsaw blade, plasticine spheres of masses 50g, 100g, 150g, 200g, 250g and 300g, G-clamp, stopwatch . *bilah gergaji, ketulan plastisin berjisim 50g, 100g, 150g, 2005, 250g dan 300g, pengapit-G, jam randik.*	
(iv)		
(v)	Method of controlling manipulated variable : The apparatus is set up as shown. A plasticine sphere of mass 50 g is fixed to the free end of the jigsaw blade.	

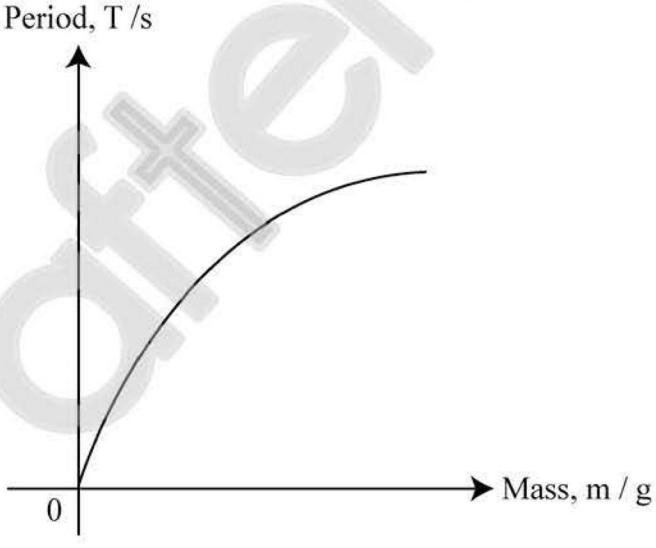
The plasticine is displaced slightly horizontally so that it oscillates.

Method of measuring the responding variable:
The time taken to make 10 complete oscillations is measured using a stopwatch. The period of oscillation is then calculated.
The experiment is repeated by using plasticine spheres of masses 100g, 150, 200g, 250g, and 300g
Cara mengawal pembolehubah dmanipulasikan
Radas disediakan seperti ditunjukkan
Plastisin berjisim 50 diletakkan di hujung bebas bilah gergaji.
Plastisin disesarkan ke tepi sedikit dan dilepaskan supaya ia berayun;
Cara mengukur pembolehubah bergerak balas
Masa yang diambil untuk buat 10 ayunan lengkap disukat mnggunakan jam randik. Tempoh ayunan kemudian dihitungkan.
Eksperimen diulangi dengan menggunakan plastisin berjisim 100g, 150g, 200g, 250g dan 300g.

(vi)

Mass of plasticine, m/g *Jisim plastisin, m/g*	Time for 10 oscillations, t/s *Masa 10 ayunan, t/s*	Period. T/s *Tempoh, T/s*
50		
100		
150		
200		
250		
300		

(vii)



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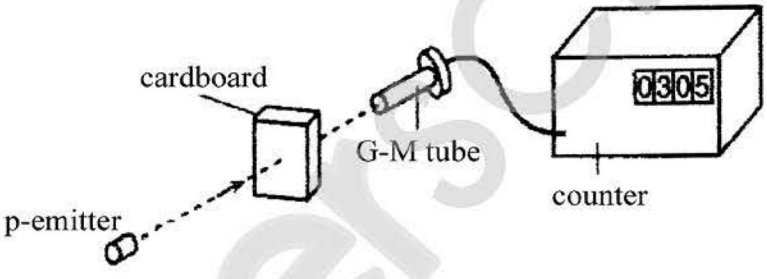
Total **12**

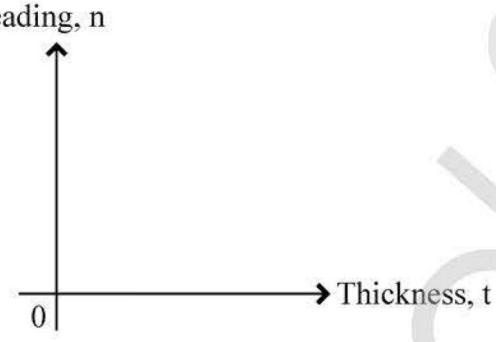
4 (a)	The amount of radiation passing through an object is affected by its thickness. *Kuantiti pancaran yang menembusi objek dipengaruhi oleh ketebalannya.*	1
(b)	The thicker the object, the less radiation passes through. *Semakin tebal objek, semakin sedikit pancaran menembusinya .*	1
(c) (i)	To investigate the relationship between the amount of radiation that passes through an object and the thickness of the object. *Untuk mengkaji hubungan antara kuantiti pancaran yang menembusi objek dengan ketebalan objek.*	
(ii)	manipulated variable : thickness, t *pembolehubah dimanipulasikan : ketebalan, t* responding variable : counts, n *Pembolehubah bergerak balas, bilangan , n* fixed variable : distance between radioactive source and G-M tube *pembolehbah dimalarkan : jarak sumber radioaktif dan tiub G-M*	
(iii)	G-M tube, β-emitter, meter rule, cardboard of different thickness. *tiub G-M, pembaris meter, kadbod dengan pelbagai ketebalan.*	
(iv)		
(v)	Method of controlling manipulated variable : The apparatus is set up as shown. The counter is reset. A piece of cardboard of thickness 1.0 mm is placed in between the source and the G-M tube. Method of measuring the responding variable : The readings shown on the counter for 2 seconds is recorded. The experiment is repeated using cardboard of thickness 2.0 mm, 3.0 mm, 4.0 mm and 5.0 mm *Cara mengawal pembolehubah dmanipulasikan.* *Radas disusun deperti ditunjukkan di atas.* *Pembilang diset semula.* *Sekeping kadod dengan ketebalan 1.0 mm diletakkan di antara sumber*	

dan tiub G-M.
Cara mengukur pembolehubah bergerak balas
Bacaan yang ditunjukkan di pembilang untuk 2 saat dicatatkan.
Eksperimen diulangi dengan menggunakan kadbod dengan ketebalan 2.0mm, 3.0mm 4.0mm dan 5.0 mm.

(vi)

Thickness, t/mm *Ketebalan, t/mm*	Reading on counter, n *Bacaan pembilang, n*
1.0	
2.0	
3.0	
4.0	
5.0	

(vii)



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Total **12**

END OF MARKING SCHEME