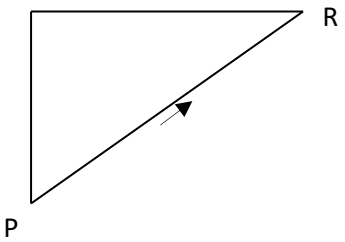
Objektif

1.	C	6.	D	11.	B	16.	D
2.	C	7.	D	12.	C	17.	C
3.	D	8.		13.	C	18.	A
4.	A	9.		14.	B	19.	C
5.	A	10.	B	15.	A	20.	A

Kertas 2

Soalan 1

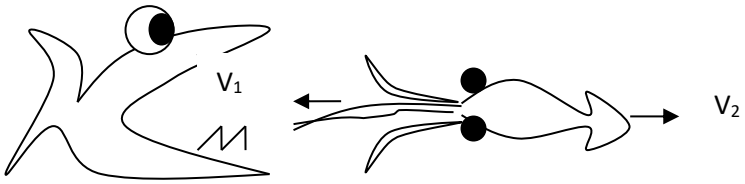
No. 1

No.	MARKING CRITERIA	MARKS	
		SUB	TOTAL
1.(a)	Displacement is distance travelled in a particular direction. Or shortest path between two points	1	
	Displacement is a vector quantity / derived quantity	1	
			
	A straight line is drawn from P to R, with an arrow showing the direction	1	
	Velocity = $\frac{500}{500}$ / 1 ms^{-1}	1	4

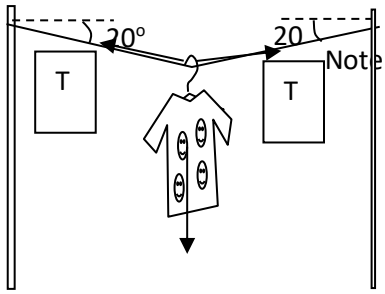
No. 2

2 (a)	alternating current/*arus ulang alik* /	1	
(b)(i)	Time interval between two consecutive dots/ *Sela masa di antara dua titik yang berturutan*	1	
(ii)	Average velocity = 8/5(0.02) =8/0.1 = 80 cm s^{-1} *Halaju purata*	2	**5**

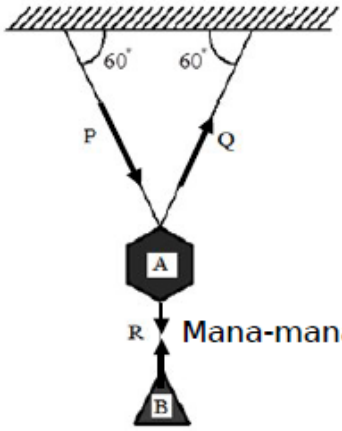
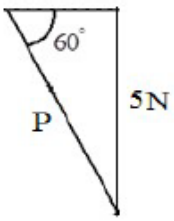
Soalan 2

2(a)		2
(b)	Principle of conservation of momentum	1
(c)	Streamline body	1
(d)	Launching a rocket// firing a gun	1
	TOTAL	**5**

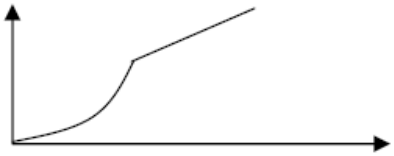
No 2 2 a)	1M	Quantity matters in a material	
2 b)	1M	The car	
2 c)	1M	Mass // Inertia is smaller	
2 d)	1M 1M	$v^2 = u^2 + 2as$ $0^2 = 15^2 + 2a(375)$ $-0.3\ ms^{-2}$	

2. (a)	Kg m s^{-2}	1
(b)(i)	 Note: also accept if only	1
(ii)	one T is labelled	1
(c)	1. 2 T sin 20^0= 8 N 2. T = 8/ 2 sin 20^0 = 11.7 N (answer with correct unit)	1 1
	Total	5

2	(a)	1	***State the correct answer*** Product of mass and velocity	P = mv ✓ define dan sign
	(b)	1 1	***State the correct substitution*** P = mv = (80)(100) ***State the correct answer with unit*** = 8 x 10^3 g m s^{-1} // 8 kg m s^{-1}	
	(c)	1	***State the correct answer*** Velocity decreases	
	(d)	1	***State the correct answer*** To increase time of impact// To reduce impulsive force	reduce impact ✗
			TOTAL = 5 MARKS	

2(a)	 Ketiga-tiga arah P, Q dan R Mana-mana arah	1
(b)	W = (0.7 + 0.3) 10 = 10 N **OR**  P = 5.0 √ Sin 60° √ = 5.77 N √	1 1 1
(c)	7 + 3 atau 10 N	1
	Jumlah	**5**

Soalan 3

3(a)(i)	Constant/ uniform velocity // acceleration is zero *Halaju seragam / pecutan sifar*	1
(a)(ii)	Constant acceleration // increasing velocity uniformly followed by zero acceleration // constant velocity *Pecutan seragam / halaju bertambah seragam diikuti dengan pecutan sifar / halaju seragam*	1
(b)(i)	zero //F = 0 *sifar // F = 0*	1
(b)(ii)	constant / uniform velocity // acceleration is zero *halaju seragam / pecutan sifar*	1
(c)	1- a curve with the increasing gradient (from 2.00 pm – 2.01 pm) 2- Straight line (> 2.01pm) 	2
	TOTAL	**6**

No 3			
a)	1M	Elastic Potential Energy → Kinetic Energy	
b)	1M	Nearer	
c) i)	1M 1M	½ (10) (20 x 10^{-2}) 1.0 J	answer with unit
ii)	1M 1M	½ mv^2 = 1.0 J v = 10 m/s	answer with unit
Total	6M		

Soalan 4

-Tiada-

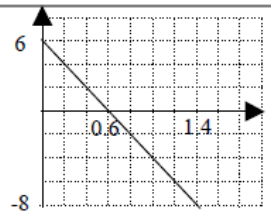
Soalan 5

5(a)	Elastic potential energy	1
5(b)(i)	Diameter spring B > Diameter spring A	1
5(b)(ii)	The extension of spring B > the extension of spring A	1

5(b)(iii)	The spring constant spring A > the spring constant spring B	1
5(c)(i)	The spring constant increases, the extension of spring decreases	1
5(c)(ii)	Hooke's law	1
5(d)(i)	The extension of spring A becomes half. / $\frac{x}{2}$	1
5(d)(ii)	The weight of load attached onto the springs is divided by two.	1

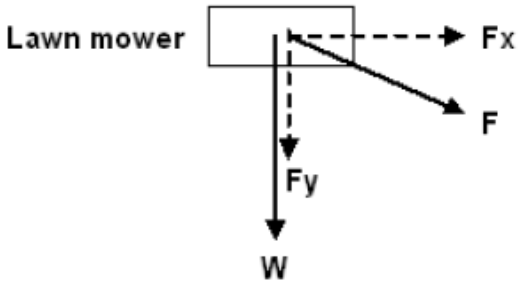
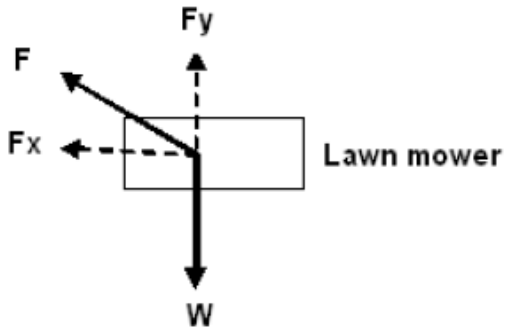
Soalan 7

7(a)(ii)	F = ma = 4000 × 2 = 8000 N	1 1
7(b)(i)	Increase/ More than 10	1
	To reduce the pressure exerted on the ground	1
7(b)(ii)	Increase/ More than 2	1
	To reduce the inertia effect/ any relevant reason	1
7(c)	- Momentum of a heavy vehicle depend on its speed - Easy to control direction/ to reduce damage effect/To reduce impulsive force when accident occurs/	1 1

7(a)		The rate of change of displacement	1
(b)	(i)	$v^2 = u^2 + 2as$	1
	(ii)	From $v^2 = u^2 + 2as$ $0 = 6^2 + 2(-10)H$	1
		$H = 1.8$ m	1
	(iii)	0.6 s	1
(c)			2
(d)		Total distance = Total area under the graph	1
		$= (\frac{1}{2} \times 0.6 \times 6) + (\frac{1}{2} \times 0.8 \times 8)$	1
		$= 5.0$ m	1
			10

Soalan 8

Soalan 9

9(a)	Kerja ialah hasil darab daya dengan sesaran pada arah daya	1
(b)(i)	Panjang landasan dalam Rajah 9.1 lebih pendek daripada Rajah 9.2 Daya dalam Rajah 9.1 lebih besar dari Rajah 9.2 Kerja yang dilakukan dalam Rajah 9.1 sama dengan dalam Rajah 9.2	1 1 1
(b)(ii)	Semakin panjang landasan, semakin kecil sudut landasan condong	1
(b)(iii)	Semakin kecil sudut landasan condong, semakin kurang daya yang dikenakan.	1
(c)	Semasa pemotong rumput ditolak: - Terdapat komponen daya ke bawah daripada daya tolak.  Daya ke bawah = W + F_y / Daya ke atas rumput adalah hasiltambah berat mesin dengan komponen menegak daya tolakan. / Daya berkesan ke bawah lebih besar. Semasa menarik pemotong rumput:  Daya ke bawah = W - F_y / Daya ke atas rumput adalah hasiltambah berat mesin dengan komponen menegak arah ke atas daya tarikan. Daya berkesan ke bawah lebih kecil	1 1 1 1

(d)		
	Ciri	**Sebab**
	Diperbuat dari bahan yang kuat	Supaya tidak mudah patah 1+1
	Ketumpatan rendah	Supaya jisim rendah/ringan 1+1
	Berbentuk larus/ aerodinamik	Mengurangkan rintangan udara/menambahkan halaju 1+1
	Gerakan atlit mesti laju tinggi	Menghasilkan momentum yang besar / Tenaga kinetik tinggi 1+1
	Lembing dilontar di atas paras bahu// pada sudut 45°	Dapat mencapai jarak optimum/ daya yang lebih besar diperolehi Max:10
	Menghayun tangan/lembing dari belakang	Menghasilkan momentum yang besar/ daya yang lebih besar/ jarak lebih jauh
		Jumlah **20**

Soalan 11

NO		MARKING CRITERIA	MARK	
			SUB	TOTAL
9(a)		**State the meaning correctly** - Product of mass and velocity // mass × velocity	1	1
(b)	(i)	**State the speed correctly** - decreases	1	
	(ii)	**State the comparison of total momentum correctly** - Equal	1	
	(iii)	**State the principle correctly** - Principle of Conservation of Momentum	1	
	(iv)	**State the comparison of kinetic energy correctly** - Smaller after collision	1	
	(v)	**State the type of collision correctly** Inelastic collision	1	5
(c)	(i)	**State the explanation correctly** - Increase the stopping time of the driver - Reduce the impulsive force acting on the driver // - Applies a force over the body of the driver to stop the motion of the driver - Prevents the driver from being thrown forward	1 1	
	(ii)	**Suggestion of another feature correctly with reason** - Any suitable feature - Correct reason	1 1	4
(d)		**State the mass of the bicycle and reason correctly** - Smaller mass - Higher acceleration // $a \propto \frac{1}{m}$	1+1	
		State the type of material of the body of the bicycle and reason correctly - Low density // name the material - Lighter mass	1+1	
		State the width of the tyre in contact with the road surface and reason correctly - Wider - Bicycle more stable	1+1	
		State the type of braking system and reason correctly - Hydraulic disc brake (Reject caliper rim brake) - Can stop the bicycle in a short distance more effectively	1+1	
		State the attire or accessories of the cyclist and reason correctly - Wear tight attire // glove // helmet - To reduce air resistance // Better grip on handles // Protect the head from injury during a fall	1+1	10
				20

Soalan 12