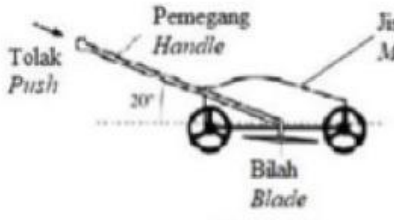
KOLEKSI SOALAN-SOALAN KERTAS 2 FIZIK PERCUBAAN SPM 2025
BAB 1 TINGKATAN 5: DAYA DAN GERAKAN I I/ *FORCE AND MOTION II*

PENANG 2025

2. Rajah 2.1 dan Rajah 2.2 menunjukkan sebuah mesin rumput digerakkan dengan dua kaedah yang berbeza. Daya yang bertindak ke atas pemegang, F boleh dileraikan kepada dua komponen menegak, F_Y dan mengufuk, F_X.
Diagram 2.1 dan Diagram 2.2 show a lawn mower is move with two different methods. The force acting on the handle, F can be resolved into vertical component, F_Y and horizontal component, F_X.



Rajah 2.1
Diagram 2.1

Rajah 2.2
Diagram 2.2

(a) Takrifkan leraian daya.
Define resolution of forces.

.....

.....
[1 markah/*mark*]

(b) Lukis rajah segitiga untuk menunjukkan leraian daya bagi Rajah 2.1 dan Rajah 2.2.
Draw diagrams of a triangle to show the resolution of forces for Diagram 2.1 *and Diagram* 2.2.

Rajah 2.1 *Diagram* 2.1	Rajah 2.2 *Diagram* 2.2

[2 markah/*marks*]

(c) Kaedah yang manakah paling sesuai digunakan untuk memotong rumput dengan lebih berkesan. Beri sebab bagi jawapan anda.
Which method is the most suitable to be applied to cut the grass more efficiently. Give reason for your answer.

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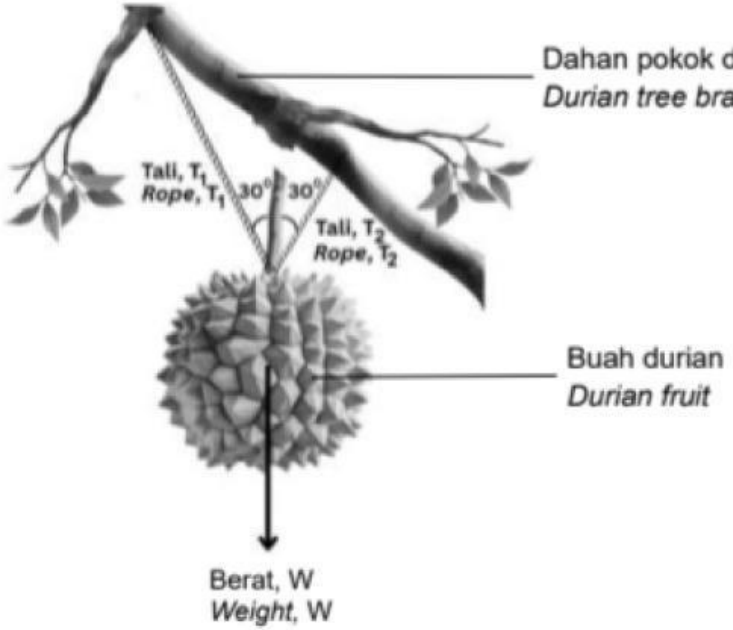
.....
[2 markah/*marks*]

KELANTAN 2025

2 Rajah 2 menunjukkan sebiji durian yang tergantung pada sepasang tali yang berada dalam keseimbangan daya.
Diagram 2 shows a durian hanging from a pair of ropes that are in a state of force equilibrium.



(a) Nyatakan maksud keseimbangan daya.
State the meaning of force equilibrium.

.....

[1 *markah*]
[1 *mark*]

(b) Berdasarkan pengetahuan anda tentang konsep daya, lakarkan segitiga daya bagi menunjukkan mengapa durian tersebut masih tergantung dan tidak jatuh.
Based on your knowledge of the concept of force, draw a force triangle to show why the durian is still hanging and not falling.

[2 *markah*]
[2 *marks*]

(c) Jika tali berlabel T_1 terputus,
If the rope labelled T_1 *snapped,*

(i) apakah yang berlaku kepada tegangan tali yang berlabel T_2 yang masih mengikat buah durian?
what happens to the tension of the rope labelled T_2 *that is still holding the durian?*

.....

[1 *markah*]
[1 *mark*]

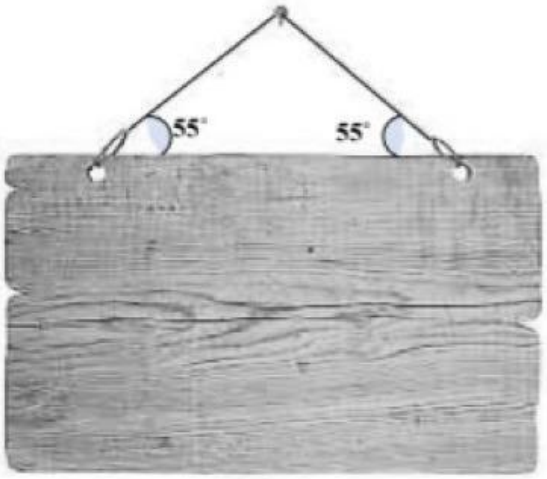
(ii) nyatakan **satu** persamaan yang mengaitkan tegangan tali, T_2 dengan berat, W.
state **one** *equation that relates the tension of the rope,* T_2 *to weight,* W.

.....

[1 *markah*]
[1 *mark*]

KL 2025

3 Rajah 3 menunjukkan 20 kg papan kenyataan yang tergantung pada dua kabel serupa dengan keadaan semua daya berada dalam keseimbangan.
Diagram 3 shows a 20 kg of notice board hung by two identical cables where all the forces are in equilibrium.



Rajah 3 / *Diagram 3*

(a) Apakah yang dimaksudkan dengan keseimbangan daya?
What is the meant by forces in equilibrium?

.....

[1 markah / 1 *mark*]

(b) Lukis segi tiga daya bagi berat papan kenyataan dan tegangan tali yang bertindak ke atas kabel itu.
Draw a triangle of the forces for the weight of the notice board and the tensions acting on the cable.

[2 markah/ 2 *marks*]

(c) Hitung
Calculate

(i) berat papan kenyataan.
the weight of the notice board.

[1 markah/ 1 *mark*]

(ii) nilai tegangan dalam kabel, T.
the value of the tension in the cable, T.

[2 markah/ 2 *marks*]

KEDAH 2025

4 Rajah 4 menunjukkan 4 spring yang serupa terletak pada roda kereta sorong bayi. Pemalar spring bagi spring itu ialah 20 N cm^{-1}.

Diagram 4 shows 4 identical springs located at the wheels of a baby stroller. The spring constant of the spring is 20 N cm^{-1}.

Rajah 4

Diagram 4

(a) Apakah yang dimaksudkan dengan pemalar spring 20 N cm^{-1}?

What is meant by spring constant 20 N cm^{-1}?

.....

.....

[1 markah]

[1 *mark*]

(b) Bagaimanakah spring itu dapat mengelakkan bayi daripada mengalami gegaran kuat apabila kereta sorong bayi bergerak di atas permukaan yang kasar? Jelaskan.

How can the spring prevent the baby from strong shakes when the baby stroller moves on a rough surface? Explain.

.....

.....

[2 markah]

[2 *marks*]

(c) Jika berat bayi itu ialah 80 N, hitung
If the weight of the baby is 80 N, *calculate*

(i) mampatan spring
the compression of spring

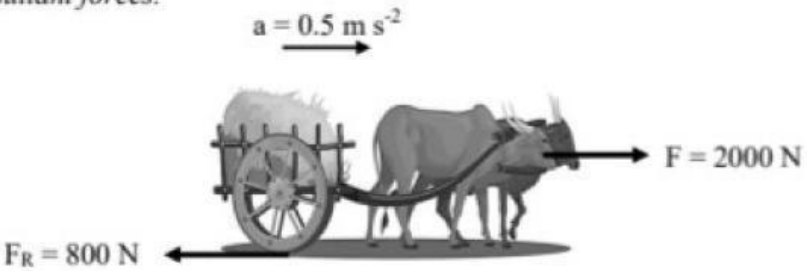
[3 markah]
[3 *marks*]

(ii) tenaga keupayaan kenyal spring
elastic potential energy of the spring

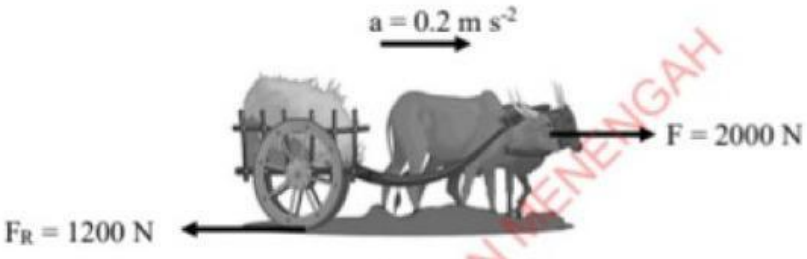
[3 markah]
[3 *marks*]

MRSM 2025

5 Rajah 5.1 dan Rajah 5.2 menunjukkan dua ekor lembu yang serupa sedang menarik beban dan menghasilkan daya paduan yang berbeza.
Diagram 5.1 and Diagram 5.2 show two identical cows pulling a load and produce different resultant forces.



Rajah 5.1
Diagram 5.1



Rajah 5.2
Diagram 5.2

(*a*) Apakah maksud daya paduan?
What is meant by resultant force?

.....

.....

[1 markah]
[1 *mark*]

(*b*) Perhatikan Rajah 5.1 dan Rajah 5.2. Bandingkan,
Observe Diagram 5.1 and Diagram 5.2. Compare,

(i) daya geseran, F_R
frictional force, F_R

.....

[1 markah]
[1 *mark*]

(ii) pecutan.
acceleration.

.....

[1 markah]
[1 *mark*]

(iii) daya paduan.
resultant force.

.....

[1 markah]
[1 *mark*]

(*c*) Berdasarkan jawapan anda di **5**(*b*), hubungkaitkan
Based on your answer in **5**(*b*), *relate*

(i) daya geseran dengan daya paduan.
frictional force and the resultant force.

.....

.....

[1 markah]
[1 *mark*]

(ii) daya paduan dengan pecutan.
resultant force and the acceleration.

.....

.....

[1 markah]
[1 *mark*]

(*d*) Rajah 5.3 menunjukkan sebuah kereta diparkir di atas jalan raya yang condong.
Diagram 5.3 *shows a car parked on a sloped road.*

Rajah 5.3
Diagram 5.3

(i) Apakah daya paduan yang bertindak pada kereta tersebut?
What is the resultant force acting on the car?

.....

[1 markah]
[1 *mark*]

(ii) Pada ruang di bawah, lakarkan segi tiga daya bagi berat, W, daya tindak balas normal, R, dan daya geseran, F_R.
In the space below, sketch the triangle of forces of the weight, W, *normal reaction,* R *and frictional force* F_R.

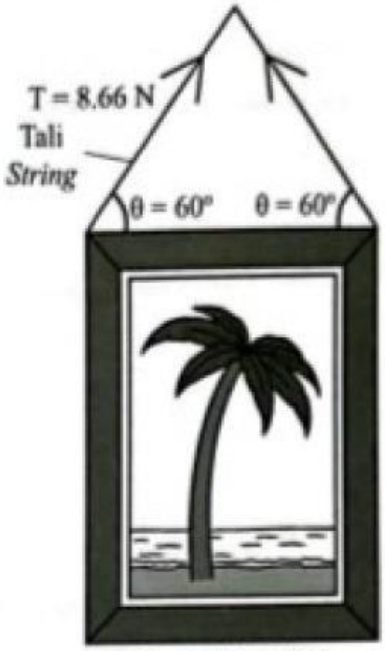
[2 markah]
[2 *marks*]

PERAK 2025

5 Rajah 5.1 dan Rajah 5.2 menunjukkan bingkai gambar digantung pada sebuah dinding dengan menggunakan tali yang serupa. Setiap tali dapat menampung daya maksimum sebanyak 16 N.
Diagram 5.1 and Diagram 5.2 show picture frames hung on a wall with identical strings. Each string can withstand a maximum force of 16 N.

Berat, W = 20 N
Weight, W = 20 N

Rajah 5.1
Diagram 5.1



Berat, W = 15 N
Weight, W = 15 N

Rajah 5.2
Diagram 5.2

(a) Nyatakan maksud keseimbangan daya.
State the meaning of forces in equilibrium.

.....

[1 markah / 1 *mark*]

(b) Perhatikan Rajah 5.1 dan Rajah 5.2,
Observe Diagram 5.1 and Diagram 5.2,

(i) bandingkan sudut di antara tali dengan bingkai gambar, θ.
compare the angle between the string and the picture frame, θ.

.....

.....

[1 markah / 1 *mark*]

(ii) bandingkan berat bingkai gambar, W.
compare the weight of picture frame, W.

.....

.....

[1 markah / 1 *mark*]

(iii) bandingkan tegangan tali, T.
compare the tension of string, T.

.....

.....

[1 markah / 1 *mark*]

(c) (i) Hubung kaitkan sudut di antara tali dengan bingkai gambar, θ dengan tegangan tali, T.
Relate the angle between the string and picture frame, θ with the tension of string, T.

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.....

[1 markah / 1 *mark*]

(ii) Hubung kaitkan berat bingkai gambar, W dengan tegangan tali, T.
Relate the weight of picture frame, W with the tension of string, T.

.....

.....

[1 markah / 1 *mark*]

(d) Bingkai gambar dalam Rajah 5.1 digantikan dengan bingkai gambar yang baharu. Dalam beberapa saat selepas digantung, didapati tali bingkai gambar telah putus.

The picture frame in Diagram 5.1 is replaced by a new picture frame. A few seconds after the frame is hung, it is found that the string of the picture frame snapped.

(i) Jika berat bingkai gambar baharu ialah 25 N, hitung tegangan tali yang baharu.

If the weight of the new picture frame is 25 N, calculate the new tension of the string.

[2 markah / 2 *marks*]

(ii) Berdasarkan jawapan dalam 5(d)(i), nyatakan mengapa tali bingkai gambar itu putus.

Based on the answer in 5(d)(i), state why the string of the picture frame snaps.

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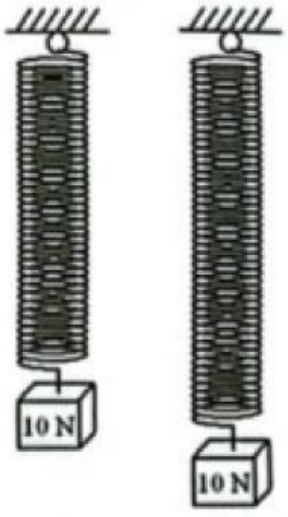
.....

[1 markah / 1 *mark*]

N9 2025

5 Rajah 5.1 menunjukkan dua spring dengan panjang asal yang sama.
Rajah 5.2 menunjukkan dua spring yang sama itu digantung dengan beban 10 N.
Diagram 5.1 *shows two springs with the same original length.*
Diagram 5.2 *shows the same two springs attached with* 10 N *load.*

Rajah 5.1
Diagram 5.1



Rajah 5.2
Diagram 5.2

(*a*) Nyatakan maksud kekenyalan.
State the meaning of elasticity.

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[1 markah]
[1 *mark*]

(*b*) Apakah jenis tenaga yang tersimpan dalam spring pada Rajah 5.2?
What is the type of energy stored in the springs in Diagram 5.2?

.....

[1 markah]
[1 *mark*]

(*c*) Perhatikan Rajah 5.1 dan Rajah 5.2, bandingkan
Observe Diagram 5.1 *and Diagram* 5.2, *compare*

(i) diameter spring A dan spring B.
the diameter of spring A *and spring* B.

.....

[1 markah]
[1 *mark*]

(ii) pemanjangan spring A dan spring B bila digantung dengan beban berjisim 100 g.
the extension of spring A *and spring is* B *when attached with* 100 g *loads.*

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[1 markah]
[1 *mark*]

(iii) nilai pemalar spring bagi spring A dan spring B.
the spring constant of spring A *and spring* B.

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[1 markah]
[1 *mark*]

(*d*) Berdasarkan jawapan di 5(*c*),
Based on the answer in 5(*c*),

(i) Nyatakan hubungan antara pemanjangan spring dengan nilai pemalar spring bagi spring tersebut.
State the relationship between the extension of the spring and the spring constant of the spring.

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[1 markah]
[1 *mark*]