

BUKU RAMALAN SPM TERBAIK!

PASTI
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FIZIK



PASTISKOR 2025

Hi! Selamat Datang Ke PastiSkor

1. Buku ini disediakan melalui analisis soalan-soalan SPM sebenar, soalan-soalan percubaan SPM 2025 dan input guru yang berwibawa.

Hanya soalan-soalan yang penting, mungkin berulang dan mempunyai peluang yang tinggi untuk keluar dalam SPM disediakan dalam buku ini.

2. Buku ini mengandungi **Ramalan SPM 2025, Analisis Kertas Percubaan SPM 2025, dan Tiga(3) set soalan kertas 2 dengan jawapan lengkap.**
3. Cara menggunakan buku ini :

Langkah 1

Beri tumpuan pada topik-topik ramalan yang disertakan dalam buku ini.

Langkah 2

Sila jawab semua soalan dan semak jawapan anda dengan skema pemarkahan yang disertakan.

**Semoga Berjaya
Daripada Semua Tenaga Pengajar Di Pastiskor!!**

PASTISKOR 2025

RAMALAN FIZIK SPM 2025

BAB	TINGKATAN 4
2 : Daya dan Gerakan I	2.5 Momentum (ms 58) Prinsip Keabadian Momentum 2.7 Impuls dan daya impuls (ms 67)
3 : Kegravitian	3.1 Hukum Kegravitasi Semesta Newton (ms 78) 3.2 Hukum Kepler (ms 96) Hukum Ketiga Kepler
4 : Haba	4.2 Muatan haba tentu (ms 125) aplikasi muatan haba tentu 4.3 Haba pendam tentu (ms 137)
5 : Gelombang	5.5 Pembelauan gelombang (ms 202) - gelombang cahaya - gelombang bunyi 5.7 Gelombang elektromagnet (ms 220) - spektrum elektromagnet (gelombang mikro)
6 : Cahaya dan Optik	6.1 Pembiasan cahaya (ms 232) - Indeks biasan 6.3 Pembentukan imej oleh kanta (ms 251) - kanta cembung 6.6 Pembentukan imej oleh cermin sfera (ms 270) - cermin keselamatan jalan

RAMALAN FIZIK SPM 2025

BAB	TINGKATAN 5
1 : Daya dan Gerakan II	1.2 Leraian daya (ms 13) 1.3 Keseimbangan daya (ms 18)
2 : Tekanan	2.2 Tekanan Atmosfera (ms 49) 2.4 Prinsip Pascal (ms 60) sistem hidraulik
3 : Elektrik	3.2 Rintangan (ms 100) - litar bersiri 3.3 Daya gerak elektrik (d.g.e) dan rintangan dalam (ms 114) - pengiraan d.g.e dan rintangan dalam 3.4 Tenaga dan kuasa elektrik (ms 124) - penyelesaian masalah dalam kehidupan harian berkaitan dengan tenaga dan kuasa
4 : Keelektromagnetan	4.2 Aruhan elektromagnet (ms 149) 4.3 Transformer (ms 162)
5 : Elektronik	5.1 Elektron (ms 174) - pancaran fotoelektron - pelepasan ion haba 5.2 Diod semikonduktor (ms 181) - rektifikasi gelombang separuh - OSK 5.3 Transistor (ms 187)
6 : Fizik Nuklear	6.1 Reputan Radioaktif (ms 200) separuh hayat
7 : Fizik Kuantum	7.2 Kesan Fotoelektrik (ms 234) teori fotoelektrik Einstein

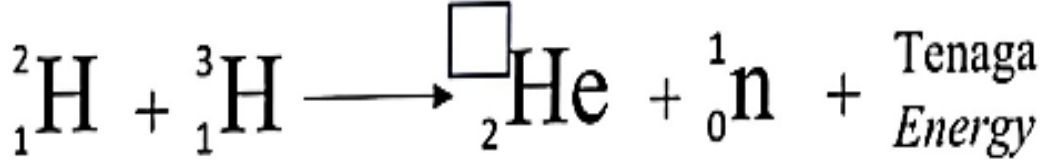
ANALISIS FIZIK PERCUBAAN KERTAS 2 SPM 2025

	1	2	3	4	5	6	7	8	9	10	11
Negeri Sembilan	T4B3 Centripetal force	T5B1 Force in equilibrium	T5B7 Photoelectric effect	T5B6 Mass defect	T5B4 Magnetic field Catapult field	T5B2 Pressure in liquid Barometer	T4B4 Latent heat of vaporisation Comparison of garment steamer	T4B6 Mirror	T4B2 Impulsive force Comparison of batting equipment set	T5B3 Current and resistance Comparison of hair dryer	T5B5 Thermionic emission Modification of phone battery
Kelantan	T5B2 Pascal's principle	T5B3 Electric circuit	T5B7 Photoelectrons	T4B3 Centripetal force Satellites	T5B2 Bourdon Gauge	T5B5 Thermionic emission	T4B5 Sound waves Comparisons of waves	T5B6 Nuclear reactor How to build nuclear reactor safely	T4B2 & T5B1 Momentum Building of water rocket Recoil velocity	T5B4 Transformer	T4B6 Refractive index Invention of optical fibre
Melaka	T4B5 Electromagnetic wave	T4B6 Mirror	T5B3 Electrical energy	T5B2 Air pressure Kinetic Theory of Gas	T4B3 Gravitational force	T5B7 Photoelectric effect	T5B1 Resolution of forces Comparison of slides	T5B3 Power and Energy	T5B2 Hydraulic jack	T5B5 Transistor	T4B2 Impulsive force Suitable equipments and techniques for pole vaulting
Pulau Pinang	T5B6 Nuclear energy	T4B2 Velocity - time graph	T4B6 Mirror	T5B5 Photoelectron emission	T4B5 Diffraction of waves	T5B4 Force of magnetic field	T5B5 Semiconductor diode	T5B2 Bernoulli's principle	T5B3 Electromotive force Comparison between filament of bulbs	T4B4 Specific heat capacity Comparison of rice keepers	T4B3 Gravitational law Kepler's Law
Pahang	T4B2 Momentum	T5B7 Photoelectric effect	T5B1 Resultant force	T5B3 Energy and Power	T4B3 Gravitational force	T5B2 Gas pressure Gas Kinetic Theory	T5B2 Pascal's principle Modification of dentist chair	T5B4 CRO Transformer	T4B6 Mirror Comparisons between security mirrors	T5B5 Fire alarm circuit Transistor Comparison between electronic circuits	T4B5 Sound waves Designing of wireless router
Kedah	T5B7 Quantum Theory of Light	T4B5 Refraction of waves	T4B4 Latent heat of fusion	T4B3 Newton's Universal Law of Gravitation	T5B4 Magnetic field Direct current motor	T4B2 Momentum Ticker tape	T5B5 Production of cathode rays in a vacuum tube	T5B3 Comparison of wires in lamp wiring system	T5B2 Hydraulic system Comparison of hydraulic bridges	T4B5 Diffraction of waves Comparison of transmitting system	T5B1 Hooke's Law Modification of sofa
SBP	T4B3 Kepler's Law	T5B4 Direct current motor EMF	T5B3 Electrical circuit	T4B5 Interference of waves	T4B5 Refraction of sound waves	T5B6 Nuclear reaction Mass defect	T5B2 Buoyancy force Hot air balloon	T4B4 Specific heat capacity Modifications on grill to be safe and for faster cooking	T4B2 Velocity and momentum Comparison of American football protective equipments	T5B3 Circuit to automatically activate LED	T4B6 Image formation by Lens How lens could be used as magnifying glass Modifications on smartphone camera for clearer image
Perlis	T4B5 Electromagnetic spectrum	T4B2 Impulsive force	T4B3 Kepler's Third Law	T5B5 Semiconductor diode CRO	T5B2 Air pressure in vertical tube	T4B6 Image formed by concave mirror Parabolic dish	T5B1 Resolving force Comparison between lawn mower	T4B4 Electromagnetic induction Modifications on dynamo	T4B4 Calibration of thermometer Cooling system of motorcycle engine Thermal equilibrium	T5B6 Radioactive decay Leakage detection using radioactive	T5B2 Hydraulic lift Aerodynamics Submarine modifications
T'ganu	T5B5 Electrons	T4B6 Refraction of light	T5B6 Radioactive decay	T4B5 Sound waves	T5B5 Transistor	T4B4 Latent heat of vaporisation	T5B3 Induction cooker	T4B3 Centripetal force	T5B2 Water pressure Designing of water tank	T4B2 Impulsive force Comparison of hockey sticks	T5B1 Elasticity

SET 1
KERTAS 2
BAHAGIAN A / SECTION A
[60 markah] / [60 marks]

Jawab **semua** soalan dalam bahagian ini.
*Answer **all** question in this section.*

1. Satu tindak balas nuklear diwakili oleh persamaan berikut:
A nuclear reaction is represented by the following equation:



- (a) Apakah jenis tindak balas yang ditunjukkan oleh persamaan di atas?
What is the type of reaction shown in the above equation?

[1 markah / mark]

- (b) Lengkapkan persamaan di atas.
Complete the above equation.

[1 markah / mark]

- (c) Tandakan (✓) bagi pernyataan yang betul.
Mark (✓) for the correct statement.

☐ Nukleus berat dipecahkan kepada dua nucleus ringan dan memancarkan neutron dan tenaga
Heavier nucleus splits into two lighter nuclei and emits neutrons and energy

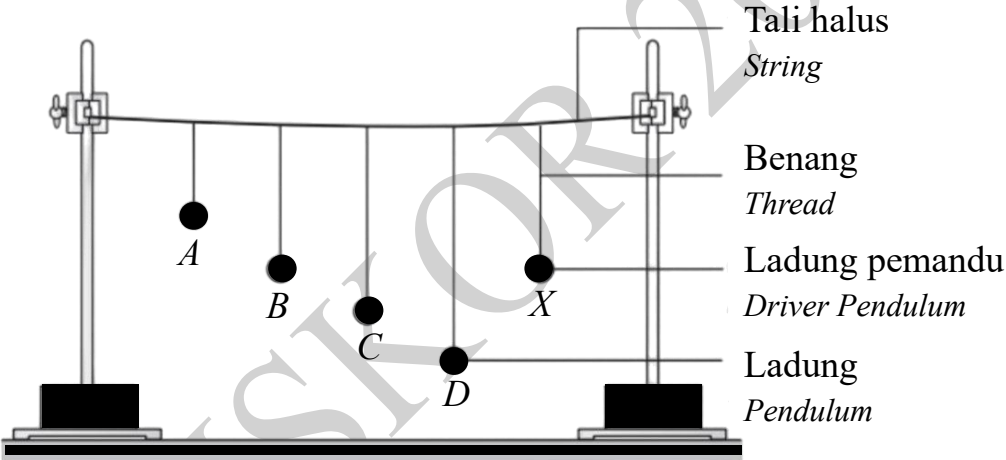
☐ Dua nucleus kecil bercantum membentuk satu nucleus yang berat dengan membebaskan tenaga yang banyak
Two lighter nuclei combine, forming a heavier nucleus and releasing huge amounts of energy.

[1 markah / mark]

- (d) Nyatakan satu keadaan yang membolehkan tindak balas ini berlaku.
State one condition that allows this reaction to occur.

[1 markah / mark]

2. Rajah 2 menunjukkan sebuah sistem ladung Barton. Apabila ladung X diayun, didapati ladung-ladung yang lain juga akan turut berayun.
Diagram 2 shows a Barton's pendulum. When pendulum X is oscillated, others pendulums will also oscillate together.



Rajah 2 / Diagram 2

- (a) Mengapakah ladung lain juga turut berayun bersama X?
Why the other pendulums oscillate together with X?

[1 markah / mark]

(b) Salah satu daripada ladung tersebut akan berayun dengan amplitud paling besar.

One of the pendulums will oscillate with the highest amplitude.

(i) Ladung manakah akan berayun dengan amplitud paling besar?

Which pendulum will oscillate with the highest amplitude?

[1 markah / mark]

(ii) Namakan fenomena fizik yang terlibat.

Name the physics phenomenon involved.

[1 markah / mark]

(iii) Mengapakah fenomena dalam (b)(ii) berlaku?

Why the phenomenon stated in (b)(ii) occurred?

[1 markah / mark]

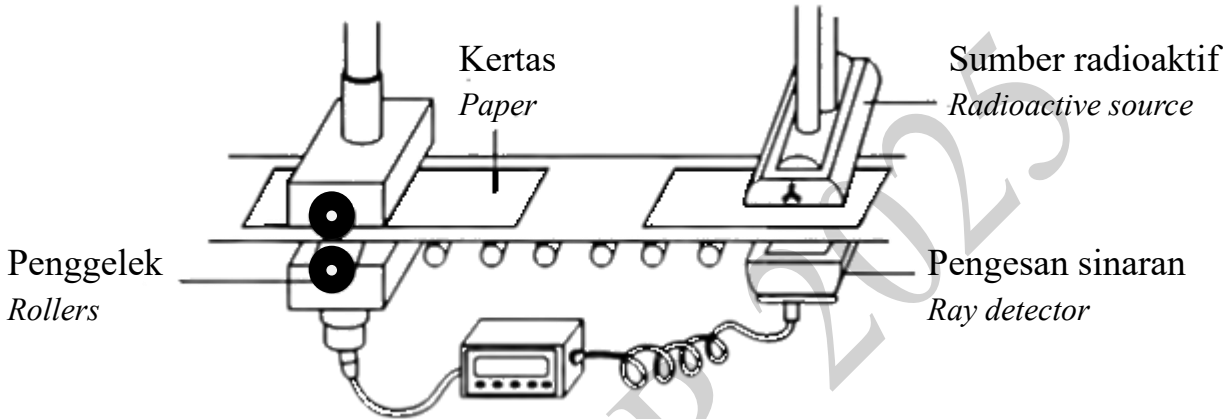
(iv) Nyatakan satu aplikasi yang melibatkan fenomena tersebut.

State one application involving the above phenomenon.

[1 markah / mark]

3. Rajah 3 menunjukkan satu sistem yang digunakan oleh sebuah kilang pembuatan kertas untuk memastikan ketebalan kertas adalah seragam.

Diagram 3 shows a system used by a factory production of paper to ensure the thickness of paper sheet is uniform.



Rajah 3 / Diagram 3

(a) Tanda (✓) jawapan yang betul.

Tick (✓) for the correct answer.

Reputan radioaktif ialah

Radioactive decay is

☐ Proses nukleus tidak stabil menjadi nukleus stabil dengan memancarkan sinaran radioaktif.

A process in which an unstable nucleus becomes stable nucleus by emitting radioactive radiation.

☐ Proses nukleus stabil menjadi nukleus tidak stabil dengan memancarkan sinaran radioaktif.

A process in which a stable nucleus becomes unstable nucleus by emitting radioactive radiation.

[1 markah / mark]

- (b) Apakah jenis sinaran radiasi yang sesuai dipancarkan oleh sumber radioaktif? Jelaskan jawapan anda.

*What is the type of radiation ray that suitable to be emitted by the radioactive source?
Explain your answer.*

[2 markah / marks]

- (c) Bacaan pembilang yang perlu dicapai untuk mendapatkan ketebalan kertas yang seragam ialah 100 bilangan per minit.

The counter reading that needs to be achieved to get the uniform paper thickness is 100 counts per minute.

- (i) Jika pembilang menunjukkan bacaan yang lebih rendah daripada 100 bilangan per minit, apakah yang akan berlaku kepada ketebalan kertas tersebut?

If the counter shows a reading lower than 100 counts per minute, what will happen to the thickness of the paper?

[1 markah / mark]

- (ii) Berikan sebab bagi jawapan anda di 3(c)(i).

Give reason for your answer in 3(c)(i).

[1 markah / mark]

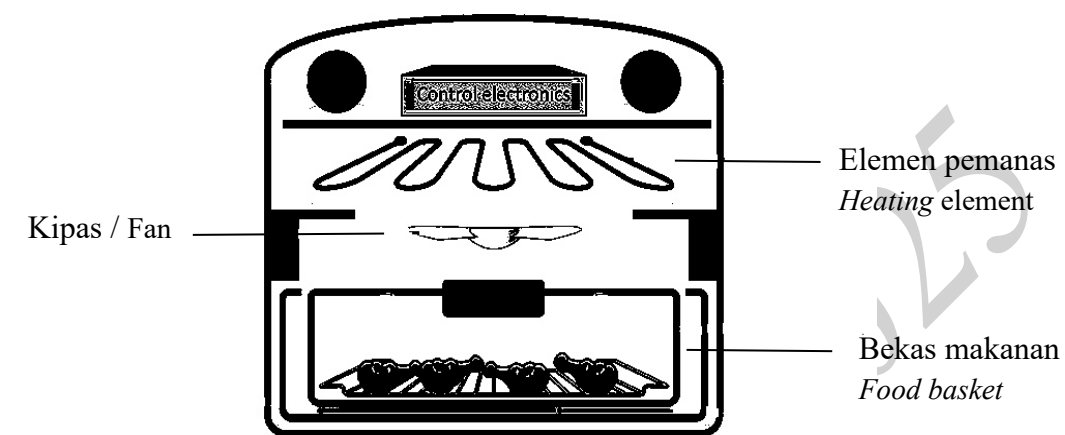
- (d) Mengapakah pembilang masih menunjukkan bacaan walaupun sumber radioaktif dimatikan?

Why does the counter still show a reading even the radioactive source is turned off?

[1 markah / mark]

4. Rajah 4 menunjukkan sebuah penggoreng elektrik berlabel 240 V, 1100 W.

Diagram 4 shows an air fryer labelled 240 V, 1100 W.



Rajah 4 / Diagram 4

- (a) Apakah yang dimaksudkan dengan 240 V, 1100 W?

What is meant by 240 V, 1100 W?

[1 markah / mark]

- (b) (i) Gegeleung nikrom digunakan sebagai elemen pemanas di dalam Rajah 4.

Nyatakan perubahan tenaga yang berlaku dalam penggoreng elektrik tersebut.

Nichrome coil is used as heating element in Diagram 4. State the energy changes that occur in the air fryer.

[1 markah / mark]

- (ii) Berikan satu cara untuk meningkatkan tenaga haba yang dihasilkan oleh elemen pemanas.

Give a way to increase the heat energy produced by the heating element.

[1 markah / mark]

- (c) (i) Penggoreng elektrik dalam Rajah 4 digunakan setiap hari selama 2 jam. Hitung tenaga yang digunakan dalam tempoh 30 hari dalam unit kWj.

*The air fryer in Diagram 4 is consumed every day for 2 hours.
Calculate the energy consumed in 30 days in unit kWh.*

[3 markah / marks]

- (ii) Diberi kos penggunaan tenaga ialah RM0.218 seunit. Hitung kos penggunaan penggoreng elektrik digunakan selama 30 hari.

*Given the cost of energy consumed is RM0.218 per unit.
Calculate the cost energy consumed by the air fryer in 30 days.*

[2 markah / marks]

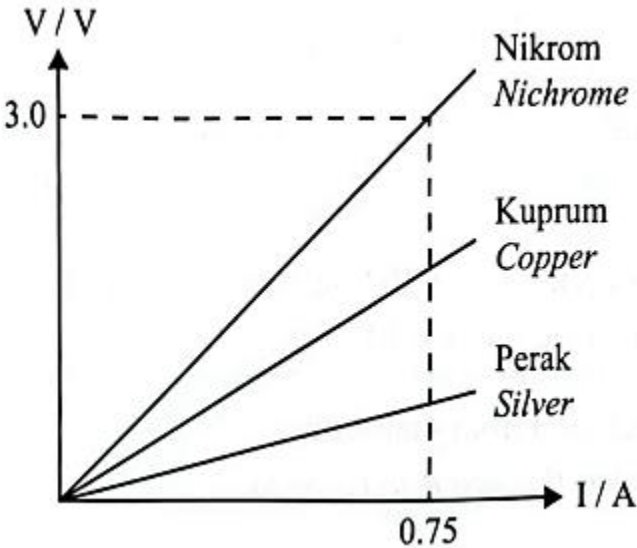
- (d) Berikan satu cadangan untuk menjimatkan penggunaan tenaga semasa menggunakan alat dalam Rajah 4 di atas.

Give a suggestion to save energy consumption when using the tool in Diagram 4 above.

[1 markah / mark]

5. Seorang murid telah menjalankan satu eksperimen untuk mengkaji hubungan antara beza keupayaan, V , dan arus, I bagi konduktor yang berbeza. Graf V melawan I yang diplotkan daripada data eksperimen Adalah yang ditunjukkan dalam Rajah 5.

A student has conducted an experiment to study the relationship between potential difference, V , and current, I , for different conductors. A graph of V against I plotted from the experimental data is shown in Diagram 5.



Rajah 5 / Diagram 5

- (a) Apakah maksud beza keupayaan?
What is meant by potential difference?

[1 markah / mark]

- (b) Berdasarkan Rajah 5, hitung rintangan bagi nikrom.
Based on Diagram 5, calculate the resistance for nichrome.

[2 markah / marks]

(c) Berdasarkan Rajah 5,
Based on Diagram 5,

- (i) Bandingkan kecerunan graf V melawan I dan rintangan bagi nikrom, kuprum dan perak.
Compare the gradient of V against I graph and the resistance for nichrome, copper, and silver.

[2 markah / mark]

- (ii) Tentukan konduktor yang mempunyai kerintangan yang paling rendah.
Determine the conductor with the lowest resistivity.

[1 markah / mark]

(d) Berdasarkan jawapan di 5(c), nyatakan hubungan antara:
Based on the answer 5(c), state the relationship between:

- (i) Kecerunan graf V melawan I dan rintangan.
The gradient of V against I and the resistance.

[1 markah / mark]

- (ii) Kerintangan dan rintangan.
The resistivity and the resistance.

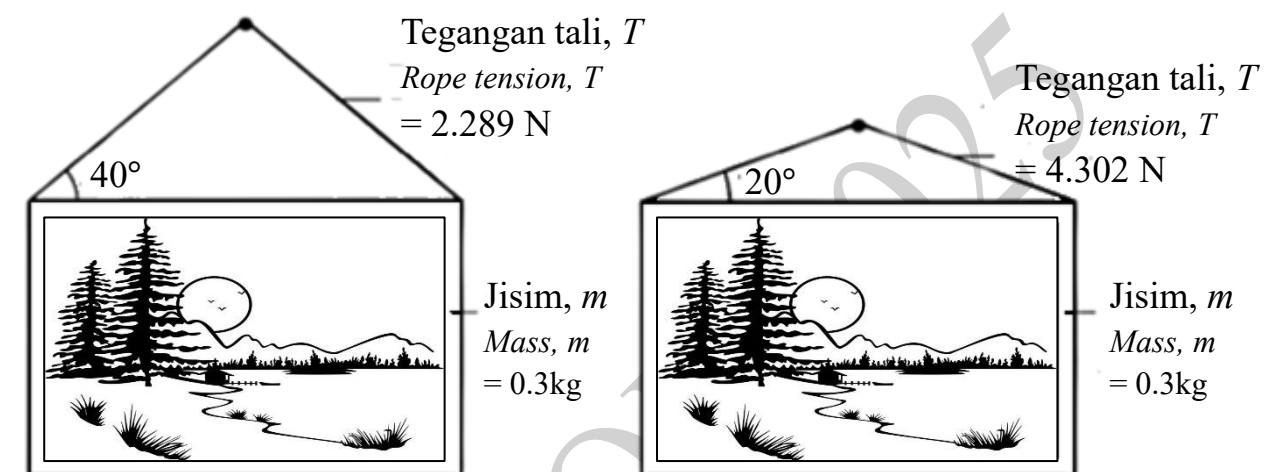
[1 markah / mark]

(e) Berdasarkan jawapan di 5(d), konduktor manakah yang paling sesuai dijadikan sebagai elemen pemanas dalam periuk nasi?
Based on the answer in 5(d), which conductor is most suitable to be used as a heating element in rice cooker?

[1 markah / mark]

6. Rajah 6.1 dan Rajah 6.2 menunjukkan dua bingkai gambar yang berada dalam keseimbangan daya.

Diagram 6.1 and Diagram 6.2 shows two picture frames that are force in equilibrium.



Rajah 6.1 / Diagram 6.1

Rajah 6.2 / Diagram 6.2

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

[1 markah / mark]

(b) Berdasarkan Rajah 6.1 dan Rajah 6.2, bandingkan
Based on Diagram 6.1 and Diagram 6.2, compare

(i) sudut, θ
angle, θ

[1 markah / mark]

(ii) tegangan tali, T
rope tension, T

[1 markah / mark]

(iii) berat bingkai gambar.
weight of picture frame.

[1 markah / mark]

(c) Berdasarkan jawapan di 6 (b), nyatakan hubungan antara sudut, dan tegangan tali, T
Based on the answer in 6(b), state the relationship between the angle, θ and the tension of the string, T

[1 markah / mark]

(d) Berdasarkan pemerhatian di 6(b) dan 6(c), buat satu kesimpulan tentang kaedah menggantung sebuah bingkai gambar yang sesuai untuk mengelakkan tali cepat putus.
Based on the observations in 6(b) and 6(c), make a conclusion about the appropriate method of hanging a picture frame to prevent the string from breaking quickly.

[1 markah / mark]

(e) Jika bingkai gambar dalam Rajah 6.1 diganti dengan bingkai gambar yang bersaiz sama dan berjisim 0.5 kg. Hitungkan tegangan tali, T .
If the picture frame in Diagram 6.1 is replaced with the same size of picture frame and mass is 0.5 kg. Calculate the tension in the string, T .

[3 markah / marks]

7. Rajah 7 menunjukkan spektrum garis hidrogen.
Diagram 7 shows a hydrogen line spectrum.



Rajah 7 / Diagram 7

Garis-garis berwarna yang terhasil mempunyai panjang gelombang, frekuensi dan kuantum tenaga yang tertentu.

Coloured lines formed have specific wavelength, frequency and quantum energy.

- (a) Apakah maksud kuantum tenaga?

What is meant by quantum energy?

[1 markah / mark]

- (b) (i) Satu garis warna daripada spektrum garis atom hidrogen mempunyai panjang gelombang 486 nm. Tentukan tenaga foton bagi garis warna tersebut.

[Pemalar Planck, $h = 6.63 \times 10^{-34} \text{ J s}$]

(Halaju cahaya dalam vakum, $c = 3.00 \times 10^8 \text{ ms}^{-1}$]

A coloured line from line spectrum of hydrogen atom has a wavelength of 486 nm.

Determine the photon's energy of the coloured line.

[Planck's constant, $h = 6.63 \times 10^{-34} \text{ J s}$]

[Speed of light in vacuum, $c = 3.00 \times 10^8 \text{ ms}^{-1}$]

[2 markah / marks]

- (ii) Berdasarkan jawapan anda di 7(b)(i), hitung kuasa output garis warna itu jika bilangan foton yang terpancar ialah $3.37 \times 10^{18} \text{ s}^{-1}$.

Based on your answer in 7(b)(i), calculate the output power of the coloured line if the number of photons emitted is $3.37 \times 10^{18} \text{ s}^{-1}$.

[1 markah / mark]

- (c) Jadual 1 menunjukkan panel solar A, B dan C.
Table 1 shows solar panels A, B and C.

Panel solar <i>Solar Panel</i>	Fungsi kerja bahan yang digunakan <i>Work function of material used</i>	Luas permukaan <i>Surface area</i>
A	Kecil <i>Small</i>	Besar <i>Big</i>
B	Besar <i>Big</i>	Kecil <i>Small</i>
C	Besar <i>Big</i>	Besar <i>Big</i>

Jadual 1 / Table 1

Berdasarkan spesifikasi dalam Jadual 1, nyatakan ciri-ciri panel solar yang sesuai untuk menyerap banyak cahaya dan menukarkan kepada tenaga elektrik yang tinggi.
Based on specification on Table 1, state the suitable characteristics of solar panel to absorb more light and convert to larger electrical energy.

- (i) Fungsi kerja bahan yang digunakan.
Work function of material used.

Sebab
Reason

[2 markah / marks]

- (ii) Luas permukaan.
Surface area.

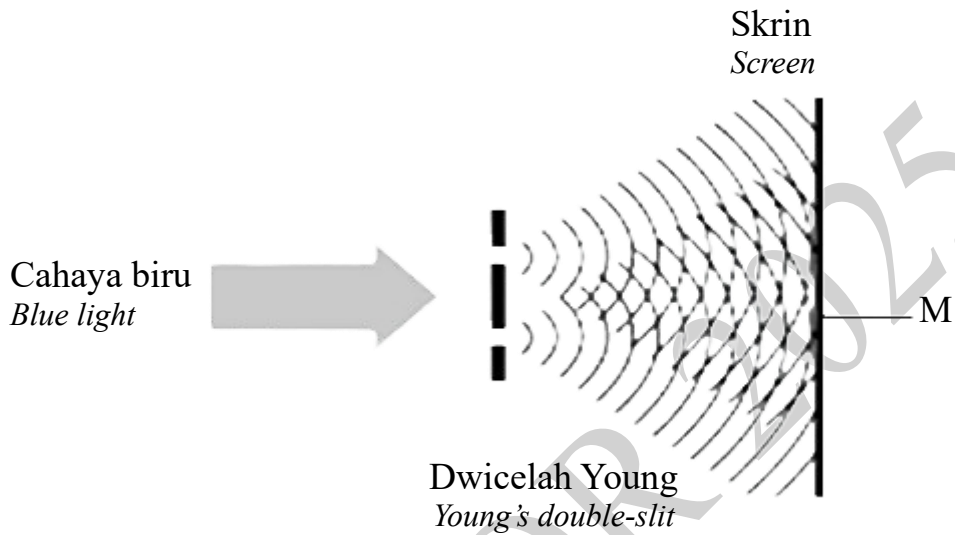
Sebab
Reason

[2 markah / marks]

- (d) Berdasarkan jawapan dalam 7(c)(i) dan 7(c)(ii), pilih panel solar yang paling sesuai.
Based on the answer in 7(c)(i) and 7(c)(ii), choose the most suitable solar panel.

[1 markah / mark]

8. (a) Rajah 8 menunjukkan satu eksperimen dwicelah Young menggunakan cahaya biru sebagai sumber cahaya.
Diagram 8 shows a Young's double-slit experiment using blue light source.



Rajah 8 / Diagram 8

- (i) Gariskan jawapan betul dalam kurungan untuk melengkapkan ayat di bawah.
Underline the correct answer in the bracket to complete the sentence below.

Titik M ialah satu pinggir (cerah , gelap).
Point M is a (bright, dark) fringe.

[1 markah / mark]

- (ii) Apakah yang berlaku pada jarak antara dua jalur pinggir cerah berturutan jika cahaya biru digantikan dengan cahaya merah?
What happens to the distance between two consecutive bright fringes if blue light is replaced with red light?

[1 markah / mark]

- (b) Seorang pelajar kejuruteraan mengkaji tentang aras hingar yang dihasilkan oleh enjin pesawat ketika berlepas. Bahan kalis bunyi yang melapisi lantai kabin adalah untuk mengurangkan hingar di dalam kabin.
Jadual 2 menunjukkan empat pesawat dengan spesifikasi kalis bunyi masing-masing.
An engineering student studies the noise level produced by the engine of aircraft during take-off. The soundproofing material that lines the cabin floor is to reduce the noise inside the cabin.
Table 2 shows four aircrafts with their respective soundproofing specifications.

Pesawat <i>Aircraft</i>	Jenis interferens <i>Type of interferences</i>	Bahan kalis bunyi <i>Soundproofing material</i>	Ketebalan bahan kalis bunyi <i>Thickness of soundproofing material</i>
P	Interferens membina <i>Constructive interferences</i>	Tidak berliang <i>Non-porous</i>	Nipis <i>Thin</i>
Q	Interferens memusnah <i>Destructive interferences</i>	Tidak berliang <i>Non-porous</i>	Tebal <i>Thick</i>
R	Interferens memusnah <i>Destructive interferences</i>	Berliang <i>Porous</i>	Tebal <i>Thick</i>
S	Interferens membina <i>Constructive interferences</i>	Berliang <i>Porous</i>	Nipis <i>Thin</i>

Jadual 2 / Table 2

Berdasarkan Jadual 2, nyatakan ciri kalis bunyi yang sesuai untuk mengurangkan aras hingar yang dihasilkan oleh pesawat, beri sebab bagi kesesuaian ciri itu.
Based on Table 2, state the suitable soundproofing features to reduce the noise level produced by the aircraft. Give reasons for the suitability of the features.