SAMPEL PERCUMA

UEC Senior Fizik · 统考高中物理

Set penuh: UEC 独中高中

物理 Physics

Sampel ini: 8 muka surat. Set penuh ada:

- 所选科目的高中统考笔记
- 簿记：第8–30章格式重点
- 商业：第一册、第二册新课本笔记
- 物理：统考格式 + 答案

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Sampel bermula di muka surat sebelah

FORMAT SEBENAR 2026 · 独中统考格式

UEC SENIOR MIDDLE PHYSICS 高中统考物理

Set Latihan Lengkap + Skema Jawapan Penuh
Complete Practice Set with Full Answer Scheme

- ✓ 24 Soalan Aneka Pilihan (Kertas 1 style) — 24 Multiple Choice Questions
- ✓ 9 Soalan Struktur (Kertas 2 style) — 9 Structured Questions
- ✓ 2 Soalan Esei Gabungan (Kertas 3 style) — 2 Combined Essay Questions
- ✓ Helaian Formula & Pemalar Fizik — Formula & Constants Sheet
- ✓ Skema Jawapan Penuh dengan Pengiraan — Full Worked Solutions

Format Kertas & Senarai Topik

Paper Format & Topic Checklist

Set latihan ini disusun mengikut format sebenar peperiksaan UEC Senior Middle Physics (高中统考物理), merangkumi tiga bahagian utama seperti kertas sebenar. Semua soalan adalah asli, ditulis khas untuk set ini, dengan skema jawapan yang telah disemak untuk ketepatan pengiraan.

This practice set follows the real UEC Senior Middle Physics exam format across three main sections. All questions are original, written specifically for this set, with an answer scheme checked for calculation accuracy.

Senarai Topik · Topics Covered

1. Kinematics 运动学
2. Dynamics (Newton's Laws) 动力学
3. Work, Energy & Power 功、能量与功率
4. Circular Motion 圆周运动
5. Gravitation 万有引力
6. Waves 波动
7. Electric Circuits 电路学
8. Electromagnetism 电磁学
9. Thermal Physics 热学
10. Modern Physics 近代物理
11. Simple Harmonic Motion 简谐运动

Bahagian A: Aneka Pilihan

Kinematics 运动学

1. A car accelerates uniformly from rest to 20 m/s in 5 s. What distance does it cover? 一辆汽车从静止开始以匀加速度在5秒内加速到20 m/s，行驶的距离是多少？

A. 40 m
B. 50 m
C. 60 m
D. 100 m

Kinematics 运动学

2. An object is dropped from rest and falls 45 m before hitting the ground (g = 10 m/s²). How long does it take to fall? 一物体从静止落下，下落45米后着地（g = 10 m/s²），下落所需时间是多少？

A. 2 s
B. 3 s
C. 4 s
D. 5 s

Dynamics 动力学

3. What force is needed to accelerate a 5 kg mass at 2 m/s²? 使5千克物体产生2 m/s²加速度所需的力是多少？

A. 5 N
B. 10 N
C. 15 N
D. 20 N

Dynamics 动力学

4. Find the momentum of a 2 kg object moving at 3 m/s. 求一个以3 m/s速度运动的2千克物体的动量。

A. 3 kg·m/s
B. 6 kg·m/s
C. 9 kg·m/s
D. 12 kg·m/s

Bahagian B: Soalan Struktur 1

Kinematics 运动学 (B1)

A ball is thrown vertically upward with an initial velocity of 20 m/s. Take g = 10 m/s² and ignore air resistance.
一个球以20 m/s的初速度竖直向上抛出。取g = 10 m/s²，忽略空气阻力。

(a) Calculate the maximum height reached by the ball. 求球能达到的最大高度。

(b) Calculate the time taken to reach maximum height. 求到达最大高度所需的时间。

(c) Calculate the total time for the ball to return to its starting point. 求球返回起点所需的总时间。

(d) State the velocity of the ball when it returns to the starting point. 说出球返回起点时的速度。

Bahagian B: Soalan Struktur 5

Waves 波动 (B5)

A sound wave travels at 340 m/s with a wavelength of 0.85 m.
一列声波以340 m/s的速度传播，波长为0.85米。

(a) Calculate the frequency of the wave. 求波的频率。

(b) Calculate the period of the wave. 求波的周期。

(c) If the wavelength is halved (speed unchanged), find the new frequency. 若波长减半（速度不变），求新频率。

Bahagian B: Soalan Struktur 9

Modern Physics 近代物理 (B9)

A metal has a work function of 2.0 eV. Light with photon energy 3.5 eV is incident on it. 一金属的功函数为2.0 eV，入射光的光子能量为3.5 eV。

(a) Calculate the maximum kinetic energy of the emitted photoelectron, in eV. 求发射光电子的最大动能（以eV为单位）。

(b) Convert this energy to joules ($1\ \text{eV} = 1.6 \times 10^{-19}\ \text{J}$). 将此能量转换为焦耳（$1\ \text{eV} = 1.6 \times 10^{-19}\ \text{J}$）。

(c) If the frequency of the incident light is doubled, does the work function change? Explain. 若入射光频率加倍，功函数是否改变？请解释。

Helaian Formula & Pemalar

Kinematics: $v = u + at$; $s = ut + \frac{1}{2}at^2$; $v^2 = u^2 + 2as$

Newton's 2nd Law: $F = ma$

Momentum: $p = mv$

Work: $W = Fs\cos\theta$

Power: $P = W/t = Fv$

Kinetic Energy: $KE = \frac{1}{2}mv^2$

Potential Energy: $PE = mgh$

Centripetal Force: $F = mv^2/r$

Gravitation: $F = GMm/r^2$

Orbital Speed: $v = \sqrt{(GM/r)}$

Wave Equation: $v = f\lambda$

Period-Frequency: $T = 1/f$

Ohm's Law: $V = IR$

Electrical Power: $P = IV = I^2R$

EMF (Faraday): $\varepsilon = N(\Delta\Phi/\Delta t)$

Transformer: $Np/Ns = Vp/Vs = Is/Ip$

Heat Energy: $Q = mc\Delta T$

Boyle's Law: $P_1V_1 = P_2V_2$

Photoelectric Effect: $KEmax = hf - W$

Mass-Energy: $E = mc^2$

Simple Pendulum: $T = 2\pi\sqrt{(L/g)}$

Constants: $g = 10\ m/s^2$; c (light) = 3×10^8 m/s; 1 eV = 1.6×10^{-19} J

Skema Jawapan: Bahagian B

B1: Kinematics 运动学 (B1)

$v^2 = u^2 - 2gh \rightarrow 0 = 20^2 - 2(10)h \rightarrow h = 400/20 = 20$ m

$v = u - gt \rightarrow 0 = 20 - 10t \rightarrow t = 2$ s

By symmetry, total time = 2×2 s = 4 s

By symmetry, velocity = 20 m/s downward (magnitude unchanged, direction reversed)

B2: Dynamics 动力学 (B2)

$v^2 = u^2 + 2as \rightarrow 0 = 30^2 + 2a(50) \rightarrow a = -900/100 = -9$ m/s² (deceleration = 9 m/s²)

$F = ma = 1000 \times 9 = 9000$ N

$v = u + at \rightarrow 0 = 30 - 9t \rightarrow t = 30/9 = 3.33$ s

TAMAT SAMPEL

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