

Physics Mock Exam Based on the End of Term 3 Coverage



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف الثاني عشر المتقدم ← فيزياء ← الفصل الثالث ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2026-06-21 14:24:21

ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
فيزياء:

إعداد: عبدالرحمن عصام عيد

التواصل الاجتماعي بحسب الصف الثاني عشر المتقدم



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الثاني عشر المتقدم والمادة فيزياء في الفصل الثالث

التربية تحدد إجازة الطلبة والمعلمين قبل انطلاق العام الدراسي 2026-2027

1

نموذج تدريبي وفق الهيكل 2026

2

نموذج تدريبي وفق الهيكل

3

End of Term 3 Revision Physics

4

مراجعة هيكل الامتحان 2026م

5



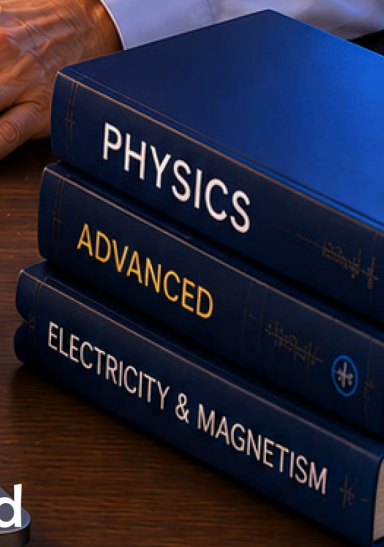
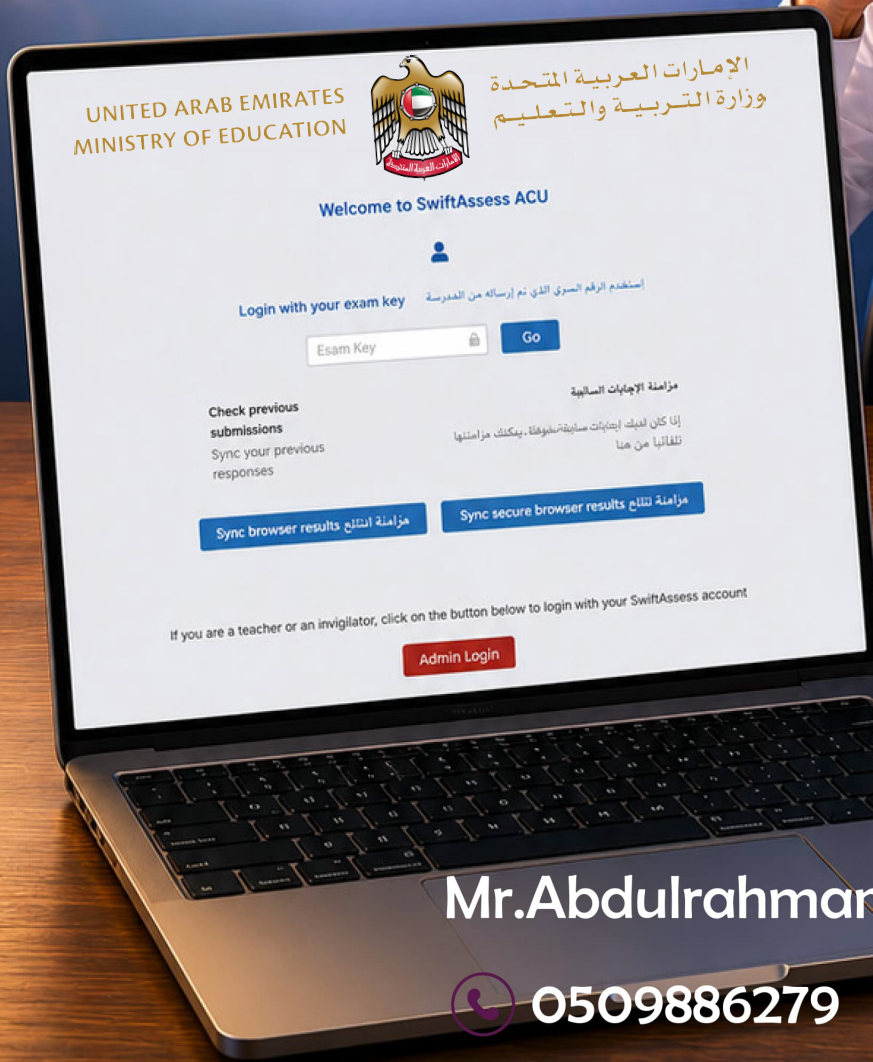
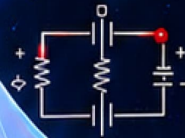
MOCK EXAM

— PHYSICS —

12 ADVANCED

TERM 3 – FINAL EXAM

$$E = mc^2$$
$$F = qvB \sin \theta$$
$$V = IR$$
$$\lambda = \frac{h}{p}$$



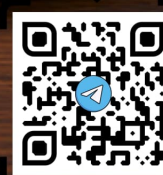
Mr. Abdulrahman Esam Eid

Einstein_AE

0509886279



Einsteinabdo



ملحوظة: تم ترتيب الأسئلة عشوائيًا لمحاكاة نمط الامتحان الفعلي، وجميعها مطابقة لمخرجات الهيكل، وتتضمن أسئلة وزارية سابقة

1. A **radioactive source** emits harmful and dangerous radiation. Mr. Abdelrahman Esam wants to design a **storage box** to safely transport the source to the laboratory while minimizing his exposure to radiation.

Which material is most suitable for **lining the box** to prevent the escape of most radioactive emissions?

- (a) Aluminium
- (b) Copper
- (c) Lead
- (d) Steel



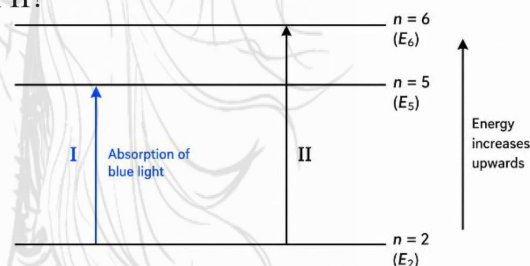
2. The diagram shows some energy levels of the hydrogen atom in the Balmer series.

Transition I represents the absorption of a photon of **blue light**.

Which color of visible light could be absorbed during Transition II?

- (a) Red
- (b) Violet
- (c) Ultraviolet
- (d) Infrared

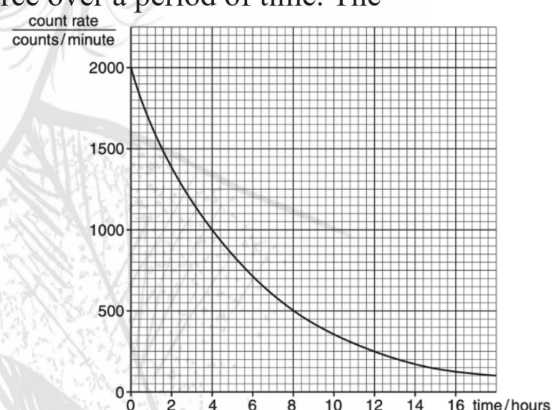
Hydrogen Atom (Balmer Series)



3. A scientist monitored the **count rate** of a radioactive source over a period of time. The graph shows how the count rate changes with time.

What is the **half-life** of this radioactive source?

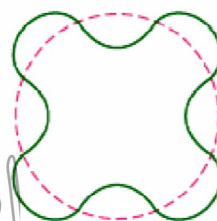
- (a) 2 hours
- (b) 4 hours
- (c) 8 hours
- (d) 16 hours



4. The diagram shows the standing de Broglie wave of an electron in a circular orbit of a hydrogen atom. The wavelength of the electron is $3.31 \times 10^{-10} \text{ m}$.

Calculate the **radius of the orbit**.

- (a) $2.11 \times 10^{-10} \text{ m}$
- (b) $4.22 \times 10^{-10} \text{ m}$
- (c) $6.62 \times 10^{-10} \text{ m}$
- (d) $8.84 \times 10^{-10} \text{ m}$



5. According to **Bohr's model** of the hydrogen atom, if the **energy** of the third **energy level** is: $-E$ what is the **energy** of the first **energy level**?

- (a) $-\frac{E}{3}$ (b) $-3E$ (c) $-\frac{E}{9}$ (d) $-9E$

6. "There is a limit to how precisely a particle's position and momentum can be measured simultaneously."

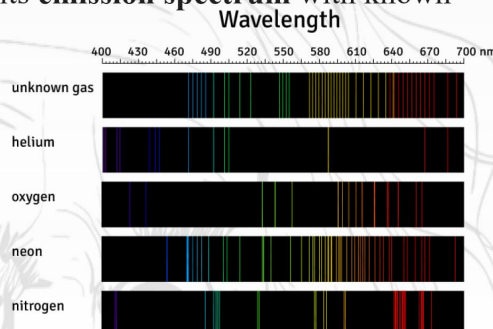
What does this statement represent?

- (a) Heisenberg Uncertainty Principle (b) Einstein's Theory of Relativity
(c) Planck's Quantum Theory (d) Compton Effect

7. A scientist has an unknown gas. By comparing its **emission spectrum** with known elements, determine the identity of the gas.

Which element matches the unknown spectrum?

- (a) Helium
(b) Oxygen
(c) Neon
(d) Nitrogen



8. The figure shows white light from an incandescent lamp passing through a cool sodium vapor and then through a diffraction grating. The spectrum formed on the photographic plate contains dark lines superimposed on a continuous spectrum.



Which of the following correctly identifies the **spectrum** formed on the photographic plate and the corresponding **electron transitions** in the sodium atoms?

	Spectrum Formed on the Photographic Plate	Electron Transitions in Sodium Atoms
(a)	Emission Spectrum 	From lower energy levels to higher energy levels
(b)	Emission Spectrum 	From higher energy levels to lower energy levels
(c)	Absorption Spectrum 	From lower energy levels to higher energy levels
(d)	Absorption Spectrum 	From higher energy levels to lower energy levels

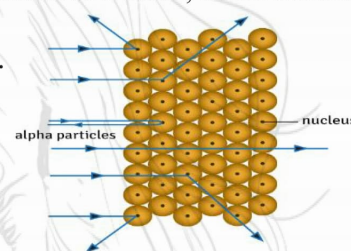
9. An electron was initially in an energy level of -1.5 eV . It emitted a photon of energy 3.5 eV . To which energy level did the electron transition?

- (a) -5.0 eV (b) 2.0 eV (c) -2.0 eV (d) -3.5 eV

10. The diagram shows the results of Rutherford's alpha-particle scattering experiment. Most of the alpha particles passed straight through the gold foil, while a very small number were scattered through angles greater than 90° .

What conclusion can be drawn from this observation?

- (a) The atom is mostly empty space, and its positive charge is concentrated in a small, dense nucleus.
(b) Positive charge is uniformly distributed throughout the atom.
(c) Electrons are embedded in a sphere of positive charge.
(d) The nucleus occupies most of the volume of the atom.



11. An **electron** behaves as both a particle and a wave (**wave-particle duality**).

If one electron moves with a speed of: $v = 6.0 \times 10^5 \text{ m/s}$
Calculate the **de Broglie wavelength**.

hint:

$$m_e = 9.11 \times 10^{-31} \text{ kg} \quad h = 6.63 \times 10^{-34} \text{ Js}$$

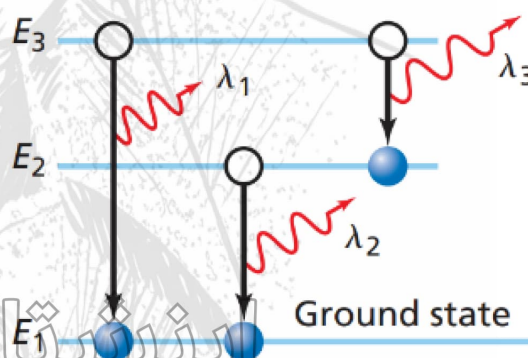
- (a) $1.0 \times 10^{-9} \text{ m}$ (b) $6.0 \times 10^{-9} \text{ m}$ (c) $1.2 \times 10^{-9} \text{ m}$ (d) $2.6 \times 10^{-9} \text{ m}$



12. Based on the energy-level transitions shown, three photons with wavelengths λ_1 , λ_2 , and λ_3 are emitted.

Which row correctly shows the order of the wavelengths, frequencies, and energies of the emitted photons?

	Wavelengths	Frequencies	Energies
(a)	$\lambda_3 < \lambda_2 < \lambda_1$	$f_3 > f_2 > f_1$	$E_3 > E_2 > E_1$
(b)	$\lambda_2 < \lambda_1 < \lambda_3$	$f_2 > f_1 > f_3$	$E_2 > E_1 > E_3$
(c)	$\lambda_1 < \lambda_2 < \lambda_3$	$f_1 > f_2 > f_3$	$E_1 > E_2 > E_3$
(d)	$\lambda_1 < \lambda_3 < \lambda_2$	$f_1 > f_3 > f_2$	$E_1 > E_3 > E_2$



13. The first **nuclear fission reaction** ever to be observed is shown in the equation below:



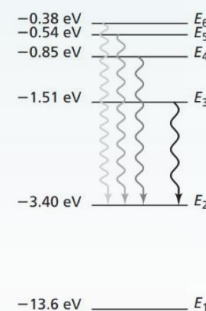
How many **neutrons** (x) are produced in this **fission reaction**?

- (a) 1 (b) 2 (c) 3 (d) 4

14. The figure shows several Balmer-series transitions in a hydrogen atom.

What is the frequency of the photon emitted during the transition from E_4 to E_2 ?

- (a) $2.55 \times 10^{14} \text{ Hz}$
 (b) $4.32 \times 10^{14} \text{ Hz}$
 (c) $6.15 \times 10^{14} \text{ Hz}$
 (d) $1.08 \times 10^{15} \text{ Hz}$



15. Tritium ${}^3_1\text{H}$ has an atomic mass of 3.016049 u

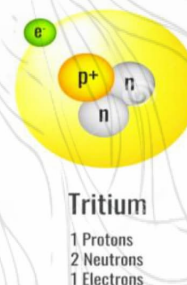
The mass of a hydrogen atom is 1.007825 u and the mass of a neutron is 1.008665 u

$$\Delta m = (\text{isotope mass}) - (\text{mass of proton and electron}) - (\text{mass of neutrons})$$

$$BE = \Delta m \times 931.5$$

What are the **mass defect** and **binding energy** of tritium?

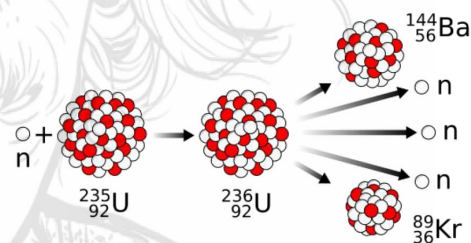
- (a) $\Delta m = 0.009106 \text{ u}$, $BE = 8.4821 \text{ MeV}$
 (b) $\Delta m = -0.009106 \text{ u}$, $BE = -8.4821 \text{ MeV}$
 (c) $\Delta m = -3.025155 \text{ u}$, $BE = 2817.9 \text{ MeV}$
 (d) $\Delta m = -3.025155 \text{ u}$, $BE = -2817.9 \text{ MeV}$



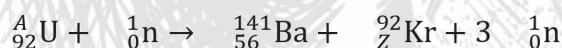
16. During a **nuclear fission** reaction, both the number of nuclei present and the masses of the individual nuclei change.

Which row correctly describes these changes?

	Number of Nuclei	Masses of Individual Nuclei
(a)	Decreases	Increases
(b)	Increases	Decreases
(c)	Increases	Increases
(d)	Decreases	Decreases



17. The following **nuclear equation**:



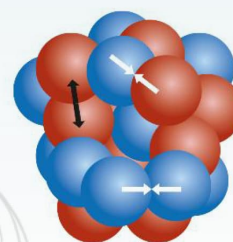
What are the values of A and Z?

	A	Z
(a)	235	36
(b)	236	36
(c)	235	38
(d)	236	38

18. Which pair represents **isotopes**?

- (a) ${}^{12}_6\text{C}$ and ${}^{14}_7\text{N}$ (b) ${}^{16}_8\text{O}$ and ${}^{17}_8\text{O}$ (c) ${}^{23}_{11}\text{Na}$ and ${}^{24}_{12}\text{Mg}$ (d) ${}^1_1\text{H}$ and ${}^4_2\text{He}$

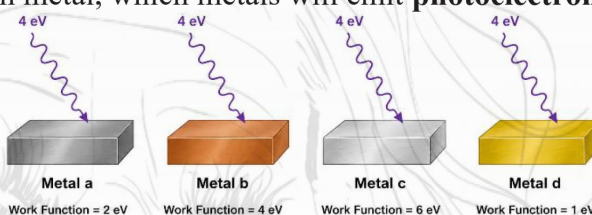
19. A nucleus contains several positively charged protons. Why does the nucleus remain stable despite the electrostatic repulsion between the protons?



- (a) The gravitational attraction between nucleons becomes significant.
- (b) The repulsive force is neutralized by electrons inside the nucleus.
- (c) Neutrons act as a physical shield, blocking the electric field.
- (d) The strong nuclear force provides a powerful attraction that overcomes the electrostatic repulsion.

20. The table below shows the **work function** of four metals: **a**, **b**, **c**, and **d**. When **light of energy: 4 eV** falls on the surface of each metal, which metals will emit **photoelectrons**?

Metal	Work Function (eV)
a	2
b	4
c	6
d	1



- (a) Metals a and b
- (b) Metals a, b, and d
- (c) Metals a and d
- (d) Metal c only

21. Light source **A** of a particular color is directed toward the surface of a sodium metal sample. No electrons are emitted from the metal surface. Light source **B** of a different color is then directed toward the same metal surface, and electrons are emitted from the metal surface.

Which of the following statements correctly explains this observation?



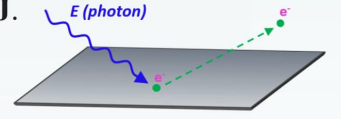
- (a) Light source A has a **higher frequency**, **greater photon energy**, and **shorter wavelength** than light source B.
- (b) Light source A has a **lower frequency**, **lower photon energy**, and **longer wavelength** than light source B.
- (c) Light source A and light source B have the **same frequency** and **same photon energy**, but different wavelengths.
- (d) Light source A has a **lower frequency**, **greater photon energy**, and **shorter wavelength** than light source B.

22. Light is incident on a metal surface. Each photon has an energy of $2.5 \times 10^{-19} \text{ J}$.

Photoelectrons are emitted with a maximum kinetic energy of $1.92 \times 10^{-20} \text{ J}$.

What is the threshold frequency of the metal?

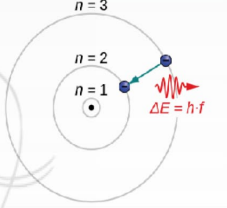
- (a) $2.85 \times 10^{14} \text{ Hz}$ (b) $3.48 \times 10^{14} \text{ Hz}$ (c) $4.72 \times 10^{14} \text{ Hz}$ (d) $5.31 \times 10^{14} \text{ Hz}$



23. An atom is initially in its highest **energy level**. According to **Planck's theory**, when the atom returns to a lower **energy level**, it emits a **photon** with an **energy** of **4 eV**.

Which of the following values cannot represent the total **energy emitted** by the atom?

- (a) 8 eV (b) 12 eV (c) 14 eV (d) 20 eV



24. Rutherford's model predicts that electrons would emit radiation at:

- (a) Only specific wavelengths. (b) All wavelengths continuously.
(c) No wavelengths. (d) Only ultraviolet wavelengths.

25. An **electron** in a hydrogen atom transition to the second **energy level**: $n_f = 2$ and emits a **photon** with **energy**: $4.08 \times 10^{-19} \text{ J}$

What is the initial **energy level** (n_i)?

- (a) $n = 1$ (b) $n = 5$ (c) $n = 4$ (d) $n = 3$

للحصول على تدريبات على الهيكل و الاختبارات السابقة
التواصل على: 0509886279

مع تمنياتنا لكم بالتوفيق والنجاح الدائم.

Einstein_AE

اينشتاين في الفيزياء
استاذ عبدالرحمن عصام عيد