

ملخص نواتج التعلم الكم والذرة



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: 2026-05-22 11:44:26

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

المزيد من مادة
فيزياء:

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

منهج بريدج هيكل الامتحان النهائي 2026م

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تجميع أسئلة هيكل الامتحان النهائي 2026م غير محلول

2

مقارنة بين التوالي والتوازي

3

مسودة الهيكل الوزاري 2026

4

بنك أسئلة في التيار الكهربائي والمقاومة

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Academic Year	2025/2026
العام الدراسي	
Term	T3
الفصل	
Subject	Physics (Inspire)
الموضوع	
Grade	12
الصف	
Stream	Advanced/المتقدم
المسار	
Number Of MCQ	25
عدد الأسئلة الموضوعية	
Markes of MCQ	4
درجة الأسئلة الموضوعية	
Type of All Questions	MCQ/ الأسئلة الموضوعية
نوع كافة الأسئلة	
Maximum Overall Grade	100
الدرجة القصوى الممكنة	
Exam Duration	120 min.
مدة الامتحان	
Mode of Implementation	Swift Assess
طريقة التطبيق	
Calculator	Allowed
الآلة الحاسبة	مسموحة

Question*	Learning Outcome/Performance Criteria**	المراجع في كتاب الطالب (النسخة الإنجليزية) Reference(s) in the Student Book (English Version)	
السؤال*	ناتج التعلم/معايير الأداء**	مثال/تمرين Example/Exercise	صفحة Page
الأسئلة الموضوعية - MCQ	1	Explain Planck's concept of quantization of energy Calculate the energy emitted or absorbed by a vibrating atom in a solid using the equation	St. textbook 68 Practice problems 72
	2	Define the photoelectric effect. Explain how the photoelectric effect occurs when light shines on a metal surface.	St. textbook 69
	3	Explain that electrons are ejected from the surface of a metal only if the frequency of the radiation is greater than a threshold frequency	St. textbook 70
	4	Calculate the energy of a photon given its wavelength or frequency. Calculate the maximum kinetic energy of an electron ejected due to the photoelectric effect	Example problem 1,2 74,76 Practice problems
	5	Explain that the maximum kinetic energy of photoelectrons is independent of the intensity of incident electromagnetic radiation. Explain that the current due to photoelectrons (photoelectric current) is proportional to the intensity of incident electromagnetic radiation.	St. textbook 70-73
	6	Interpret the graph of maximum kinetic energy of an electron ejected from a metal versus the frequency of incident photon and determine graphically the threshold frequency and Planck's constant.	St. textbook 75
	7	Describe the de Broglie wavelength as the wavelength associated with a moving particle. Calculate the de Broglie wavelength for a moving particle ($\lambda = \frac{h}{p} = \frac{h}{mv}$)	Example problem 3 80 Practice problems
	8	Describe that the more precisely a particle's position is measured, the more the uncertainty in simultaneously measuring the particle's momentum, and vice versa	St. textbook 81
	9	Describe the electron distribution within the atom according to Thomson's model. Describe how Rutherford's alpha particles scattering experiment led to the revision of Thomson's model of the atom and the introduction of the atomic nucleus	St. textbook 82-83
	10	Explain how the composition of an unknown gas sample can be determined using its emission and absorption spectrum	St. textbook 84-85
	11	Explain that the absorption spectrum of an element is a unique pattern, which serves as a fingerprint of that element.	St. textbook 85-86
	12	Explain that an atom can transition from an initial energy state (E_i) to a final energy state (E_f) by absorbing or emitting a photon whose energy equals the difference between the two states.	St. textbook 85-86
	13	Describe Rutherford's nuclear model of the atom, as a small dense positively charged nucleus surrounded by orbiting electrons (planetary model), and explain why this model cannot explain the stability and the observed line emission spectra of atoms.	St. textbook 86-87
	14	Calculate the total energy of a Hydrogen atom Describe that the radius of the electron's orbit in Hydrogen atom is proportional to n^2 , while the energy of the atom is inversely proportional to n^2 ,	Example problem 4 92 Practice problems
	15	Explain that the Lyman, Balmer, and Paschen series and the energy levels and transitions correspond to them	St. textbook 91
	16	Calculate the energy, frequency, and wavelength of an emitted or absorbed photon as an atom transition from an initial energy level to a final energy level	Example problem 5 93 Practice problems
	17	Illustrate that, in the Bohr model, the circumference of a stable electron orbit must be an integer multiple of the de Broglie wavelength ($2\pi r=n\lambda$), as a result of combining de Broglie and Bohr ideas.	St. textbook 95
	18	Define the mass number, A, as the total number of nucleons (protons and neutrons) in an atomic nucleus (A=Z + N). Represent nuclei of isotopes using the notation, where 'Z' is the atomic number and 'A' is the mass number	St. textbook 107-108 Practice problems 109
	19	Define the strong nuclear force as a very short-range attractive force that acts between nucleons (proton-proton, neutron-neutron, and proton-neutron) when they are very close together, as in the atomic nucleus. Define the mass defect as the difference between the actual mass of an atomic nucleus and the sum of the masses of its constituting nucleons.	St. textbook 109
	20	Calculate the mass defect of an atomic nucleus. Calculate the binding energy of an atomic nucleus.	Example problem 1 111 Practice problems
	21	Compare alpha, beta, and gamma decays in terms of the particles emitted their electric charge, their penetrating ability, and the resulting nuclear transmutation	St. textbook 114
	22	Explain that electric charge is conserved in a nuclear reaction, so the total charge is the same on both sides of the nuclear equation	Example problem 2 116 Practice problems
	23	Write a balanced nuclear equation to describe a simple nuclear reaction, such as the bombardment of a nucleus by an alpha particle	Example problem 3 117 Practice problems
	24	Analyze a graph of the number of undecayed radioactive nuclei versus time, and determine the half-life and the amount of radioactive nuclei present at a certain time t Calculate the amount of radioactive nuclei remaining in a sample	St. textbook 117-118 Practice problems 119
	25	Define and describe nuclear fission and nuclear fusion	St. textbook 119-123
*	Questions might appear in a different order in the actual exam.		
*	قد تظهر الأسئلة بترتيب مختلف في الامتحان الفعلي		
**	As it appears in the textbook, LMS, and (Main_IP).		
**	كما وردت في كتاب الطالب وLMS والخطة الفصلية.		