UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

الإمارات العربية المتحدة
وزارة التربية والتعليم

Department of Assessment & Measurement

إدارة تقييم وقياس أداء الطلبة

Exam Coverage

الهيكل الامتحاني

الفيزياء

Academic Year العام الدراسي	2024/2025
Term الفصل	1
Subject المادة	Physics/Inspire الفيزياء/انسباير
Grade الصف	10
Stream المسار	Advanced المتقدم
Number of MCQ عدد الأسئلة الموضوعية	15
Marks of MCQ درجة الأسئلة الموضوعية	4
Number of FRQ عدد الأسئلة المقالية	4
Marks per FRQ الدرجات للأسئلة المقالية	8 - 12
Type of All Questions نوع كافة الأسئلة	الأسئلة الموضوعية /MCQ الأسئلة المقالية /FRQ
Maximum Overall Grade الدرجة القصوى الممكنة	100
Exam Duration - مدة الامتحان	150 minutes
Mode of Implementation - طريقة التطبيق	SwiftAssess & Paper-Based
Calculator الآلة الحاسبة	Allowed مسموحة

	Question* السؤال*	Learning Outcome/Performance Criteria** نواتج التعلم/ معايير الأداء**	Reference(s) In the Student Book (Arabic Version) المرجع في كتاب الطالب (النسخة العربية)	
			Example/Exercise مثال/تمرين	Page الصفحة
الأسئلة الموضوعية - MCQ	1	Apply the equation ($T=2\pi\sqrt{(l/g)}$) to calculate the period of a simple pendulum for small-angle oscillations.	Student Book	P.(7-8)
			Q.(5-8 & 11)	P.8
	2	Apply Hooke's law to calculate the force exerted by a spring, the spring constant, or the distance by which a spring is stretched or compressed.	Student Book	P.(4-6)
			Q.(1-4)	P.6
	3	Sketch snapshots for the superposition of two overlapping wave pulses (same wavelength) traveling in opposite directions showing the resultant wave.	Student Book	P.(16-17)
			Q.31	P.20
	4	Differentiate between transverse, longitudinal, and surface waves and give examples.	Student Book	P.(9-10)
			Q.(25-27)	P.14
	5	Explore through an experiment, like using a number of musical instruments, the perception of sound depending on its different physical quantities like amplitude and frequency, and relate them to loudness and pitch.	Student Book	P. (29-30)
			Q.6	P.33
	6	Describe the sound level and define the decibel (dB) as a unit of measuring sound level.	Student Book	P.(29-30)
			Figure 4	P.30
	7	Explore the meaning of resonance and understand how musical instruments work.	student Book	P.(35-40)
			Q.(13-16)	P.40
	8	Analyze a position-time graph to describe an object's motion.	Student Book	P. (41-42)
			Figure 17 & 18; Q.22	P.44
	9	Distinguish between electrical conductors and insulators giving typical examples	Student Book	P. (53-54)
			Q. (2-4)	P.54
	10	Demonstrate an understanding that the work performed in moving a charged particle in an electric field can result in the particle gaining electric potential energy or kinetic energy or both.	Student Book	P. (74 - 75)
			Q.(43 - 52)	P. (74 - 75)
	11	1. Use vector addition to calculate the net force on a charge due to other point charges. 2. Solve problems involving the electrostatic force acting on charged particles by making use of Coulomb's Law.	Student Book	P.(59-62)
			Q.(15-17, 22-23)	P.63
	12	1. State and apply Coulomb's law to charges separated by finite distances. 2. Conduct an experiment to demonstrate charging of objects and the electrostatic force between charged objects.	Student Book	P.(59-62)
			Physics Challenge, Q.(9-17, 22-23)	P.(62-63)
	13	1. Explain how electric charges are distributed on a spherical conductor, and the effect of this on both the electric field and the electric potential. 2. Explain the meaning of equipotential.	Student Book	P.78
			Figure 28; Q. 61	P.80
	14	Describe Millikan's oil-drop experiment and explain how it confirms that charge exists in discrete amounts, which are integral multiples of the elementary charge.	Student Book	P.(76-77)
			Q.(53-56); Q.66	P.81
	15	1. Define capacitance as the ratio of the net charge on one plate of a capacitor to the potential difference across the plates, and it is measured in Farads. 2. Apply the equation for capacitance to solve numerical problems.	Student Book	P.(79-81)
			Q.(57-62, 68)	P.(80-81)

*	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.
***	Physical units are distinctive for any physical quantity, and a distinguishing mark for it. Therefore, care must be taken to guide students by giving the appropriate physical unit for each quantity.	الوحدات الفيزيائية مميزة لأي كمية فيزيائية، وعلامة فارقة لها، لهذا يجب الاهتمام بتوجيه الطلاب باعطاء الوحدة الفيزيائية المناسبة لكل كمية.
****	Focusing on science processes (scientific thinking skills), especially basic ones.	التركيز على عمليات العلم (مهارات التفكير العلمي) وخاصة الأساسي منها.

الأسئلة المقالية - FRQ	Q1	1. Determine wave properties such as wavelength, period, frequency, amplitude, and speed using a graphical or a visual representation of a periodic mechanical wave. 2. Explain that transverse and longitudinal waves transfer energy without transferring matter during their propagation.	Student Book	P.(10-14); P.9
			Q.(14-23); Q.25	P.14
	Q2	1. Use the relation between resonance length and wavelength to solve problems for closed and open pipes. 2. Define sound pitch and relate it to the frequency of a sound wave. 3. Define resonance and list some examples and consequences. 4. Explain resonance in air columns and give examples on different instruments. 5. Apply the Doppler effect equation to calculate different frequencies and velocities.	Student Book	P.29; P.37; P8; P.(30-33)
			Q.15; Q.(1-12)	P.40
	Q3	1. Describe the charge distribution on a solid conducting sphere, a hollow conducting sphere and an irregular conducting surface. 2. Calculate the electric field strength at a point close a single point charge / a conducting charged sphere.	Student Book	P.(65-67), P.78
			Q.(24 - 37)	P.(66-67)
	Q4	Demonstrate knowledge of electrostatic charge, differentiate materials based on their electrical conductivity, and describe the methods of electrical charging of objects.	Student Book	P.(52-58),
			Q.(2-7), Q.(18-21)	P.54; P.63