

Academic Year	2023/2024
العام الدراسي	
Term	3
الفصل	
Subject	Physics/Inspire
المادة	
Grade	10
الصف	
Stream	Advanced
المسار	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	10
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	Allowed
الآلة الحاسبة	مسموحة

Question*	Learning Outcome/Performance Criteria**	Reference(s) in the Student Book (Arabic Version)	
		المراجع في كتاب الطالب (النسخة العربية)	
السؤال *	نتائج التعلم / معايير الأداء **	Example/Exercise أمثلة / تمارين	Page الصفحة
الأسئلة الموضوعية - MCQ	1	1. Explain how the relative motion between a conductor such as a wire and a magnetic field causes an induced emf. 2. Apply the right-hand rule to determine the direction of the induced emf and thus the direction of induced current in a wire moved in a magnetic field.	Student Book Figure 2 153-154 153
	2	Define electromotive force emf and specify its unit as volts (V).	Student Book 153
	3	Identify devices and machines that operate primarily on the principle of electromagnetic induction.	Student Book Q.9-Q.12 155-159 159
	4	Identify the phenomena associated with electromagnetic induction, which fulfills Lenz's law and confirms that there is no ideal physical quantity.	Student Book 162 (Eddy currents)
	5	Describe that Lenz's Law is a consequence of the law of conservation of energy.	Student Book 160-161
	6	1.Relate the effective current and effective potential difference to their maximum values in an AC circuit. 2.Calculate the maximum and effective values of current, voltage, and power for an AC generator.	Student Book Q.5-Q.8, Q14-Q.15 158-159 159
	7	Apply the equation $EMF = BLv(\sin \theta)$ to determine the magnitude of induced emf for a wire moving through a magnetic field.	student Book Q.1-Q.4 153-155 155
	8	Calculate the speed of electromagnetic waves in different mediums of different dielectric constants.	Student Book Q.42-Q.45 180-181 181
	9	Apply the wave equation to calculate the wavelength, frequency, or speed of electromagnetic waves.	Student Book Q.38-Q.40 176-177 177
	10	Determine the optimal length or orientation of an antenna for the best reception of a given wave.	Student Book Q.49, Q.51 183-184 185
	11	Explain how transformers are used in the National Grid System to transmit power through long distances with minimal power losses.	Student Book Figure 16 167 167
	12	Derive the relation of the wavelength from double-slit investigation $(\lambda = xd/L)$ where 'x' is the distance on the screen from the central bright fringe to the first bright band, 'd' is the distance between the slits, and 'L' is the distance from the slits to the screen.	Student Book Q.1-Q.5 195-196 196
	13	Explain how bright and dark interference fringes (bands) are created in a double-slit interference investigation with monochromatic light.	Student Book 195
	14	Explain the phenomenon of thin-film interference.	Student Book 197
	15	Define the phenomenon of thin-film interference.	Student Book 197-200
الأسئلة المقالية - FRQ	Q1	1. Explain how the relative motion between a conductor such as a wire and a magnetic field causes an induced emf. 2. Apply the equation $EMF = BLv(\sin \theta)$ to determine the magnitude of induced emf for a wire moving through a magnetic field. 3. Apply the equation $i = EMF/R$ to calculate the magnitude of induced current in a wire that is part of a closed circuit.	Student Book Example Problem 1, Q.1-Q.4 152-158 154-155
	Q2	1. Relate the turn's ratio of a transformer to its corresponding voltage ratio and apply the corresponding equation in problem solving. 2. Apply the ideal transformer equation to solve numerical problems. 3. Differentiate between step-up and step-down transformers.	Student Book Example Problem 2, Q.16-Q.17; Table 164-166 166, 165
	Q3	1. Determine the type of pole induced on the face of a coil and the direction of induced current in a coil when a coil and a magnet are in relative motion. 2. Define coherent and incoherent light. 3. Explain how bright and dark interference fringes are created in a double-slit interference investigation with monochromatic light. 4. Recall the concepts of constructive and destructive interference and define interference fringes of light.	Student Book Figure 10; Figure 5 160-161; 193; 193-196 161, 193; 194
	Q4	1. Apply the relation $(\lambda = xd/L)$ to calculate the wavelength or to find an unknown distance in a double-slit investigation given the other values. 2. Show that the intensity of bright bands decreases as you go farther from the central band (double slit interference with monochromatic light). 3. Explain the formation of a colored spectra when white light is used in a double-slit investigation. 4. Solve problems on interference of light.	Student Book Example Problem 1, Q.1-Q.4; Example Problem 2, Q.5-Q.9 193-196 196; 197-200; 199
* 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 بتعطاء الوحدة الفيزيائية المناسبة لكل كمية.			