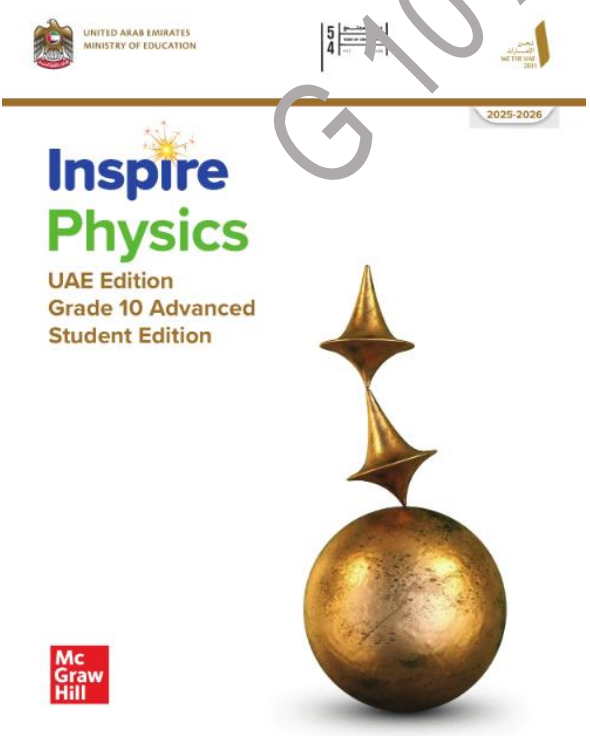
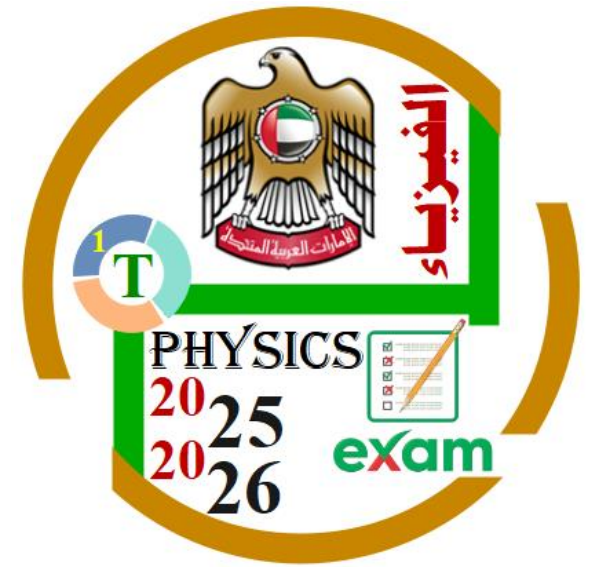


Academic Year العام الدراسي	2K ²⁵ /2K ²⁶
Term/الفصل	①
Subject الموضوع	Physics (INSPIRE)
Grade الصف	10
Stream. المسار	Advanced المتقدم
Number Of MCQ عدد الأسئلة الموضوعية	20
Markes of MCQ درجة الأسئلة الموضوعية	2→4
Number of FRQ عدد الأسئلة المقالية	4
Marks Per FRQ الدرجات للأسئلة المقالية	9→11
Type of All Questions نوع كافة الأسئلة	الأسئلة الموضوعية / MCQ/ الأسئلة المقالية / FRQ
Maximum Overall Grade الدرجة القصوى الممكنة	100
Exam Duration مدة الامتحان	150 min
Mode of implementation طريقة التطبيق	Paper-Based & Swift Assess.
Calculator الآلة الحاسبة	Allowed مسموحة



Type	Question * n	ناتج التعلم / معايير الأداء** Learning Outcome/Performance Criteria**	المرجع في كتاب الطالب (النسخة الانجليزية) Reference(s) in the Student Book (English Version)	
			مثال/تمرين. Example /Exercise.	Page. صفحة
الأسئلة الموضوعية MCQ – [60%]	1	❖ Define periodic motion and quantities associated with periodic motion like period and amplitude. ❖ Describe the characteristics of simple harmonic motion.	Student Book	3
	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 Example Problem 1 Practice Problem Q. (3)	4 6 6
	3	Apply the law of conservation of energy for both a horizontal oscillating mass – spring system and simple pendulum to relate the total energy of each system at one instant to the total energy at another instant.	Student Book Check Your Progress Q. (9)	5 8
	4	Determine what affects the period of a simple pendulum.	Student Book Get It	7 7
	5	Differentiate between <u>transverse</u> , <u>longitudinal</u> , and <u>surface waves</u> and give examples.	Student Book	9 → 10
	6	Describe wave properties like <u>amplitude</u> , <u>energy</u> of a wave, <u>wavelength</u> , <u>speed</u> , <u>phase</u> , <u>period</u> and <u>frequency</u> .	Student Book	10 → 11
	7	Describe wave properties like <u>amplitude</u> , <u>energy</u> of a wave, <u>wavelength</u> , <u>speed</u> , <u>phase</u> , <u>period</u> and <u>frequency</u> .	Student Book	10 → 11
	8	Calculate the frequency of a wave from its period and vice-versa ($f=\frac{1}{T}$).	Student Book Practice Problem (21,22,23)	12 14
	9	❖ Describe the behaviour of mechanical waves at boundaries (reflection and refraction). ❖ Describe that a mechanical wave is inverted if reflected from a fixed end and remains upright if reflected from a free end.	Student Book	15 → 16
	10	State and apply the principle of superposition to show that two overlapping waves add algebraically to give a resultant (or net) wave.	Student Book	16 → 17
	11	❖ Describe the formation of standing waves on a string. ❖ Define nodes and antinodes and describe how they are formed.	Student Book	18
	12	❖ Describe the representation of waves in two-dimensions. ❖ Use a ripple tank to model wave behaviour in two dimensions (such as reflection and refraction of waves traveling on the surface of water).	Student Book	18 → 20
	13	Explain that the speed of sound varies with different mediums and temperatures.	Student Book	27 → 28
	14	❖ Define sound pitch and relate it to the frequency of a sound wave. ❖ Define loudness and relate it to the amplitude of a sound wave.	Student Book	29
	15	❖ Define the Doppler Effect. ❖ Explain the Doppler Effect of sound.	Student Book	30 → 31
	16	Define nodes and antinodes and discuss pressure and displacements at these points in case of open and closed pipes.	Student Book	36 → 37
	17	❖ Use the relation between resonance length and wave-length to solve problems for closed and open pipes. ❖ Explain resonance on strings and identify the relations between wavelength, frequency, and the string length.	Student Book Get It	36 → 39 38
	18	Explain the factors that affect the speed of travel of a wave on a string.	Student Book	39
	19	❖ Define timbre in music as the difference between sound waves of different instruments. ❖ Define the fundamental frequency and harmonics and their relation with the timbre of a musical instrument.	Student Book	41
	20	❖ Define a beat as oscillating high and low sound levels produced from the interference of two sound waves of nearly identical frequencies. ❖ Calculate the frequency of a beat as the magnitude of the difference between the frequencies of the two waves	Student Book	43
الأسئلة المقالية – [40%] FRQ –	21	1 PART ↳ Describe the characteristics of simple harmonic motion. ↳ Describe simple harmonic motion (mass – spring oscillator and a simple pendulum) at maximum displacement and at equilibrium positions in terms of velocity, acceleration, restoring force, and kinetic and potential energy.	Student Book Figure 1	3 3
		2 PART ↳ Describe the energy transformations between potential energy and kinetic energy for both a horizontal oscillating (mass – spring) system and a simple pendulum.	Student Book	5
	22	1 PART ↳ Calculate the potential energy stored in a spring graphically from the area under a force vs extension graph. ↳ Calculate the spring constant graphically from the slope of force vs extension graph.	Student Book Example, Problem 1 Practice Problem Q.(1,2)	4 6 6
		2 PART ↳ Describe the motion of an oscillating simple pendulum. ↳ Apply the equation ($T= 2\pi \sqrt{\frac{l}{g}}$) to calculate the period of a simple pendulum for small-angle oscillations.	Student Book Example, Problem 2 Practice Problem Q.(6,7)	7 8 8
	23	1 PART ↳ Determine wave properties such as wavelength, period, frequency, amplitude, and speed using a graphical or a visual representation of a periodic mechanical wave. ↳ Apply the relation ($v = \lambda f$) to calculate the speed, wavelength, or frequency of a wave.	Student Book Example, Problem 3 Practice Problem Q.(14,20)	12 13 14
		2 PART Apply the Doppler effect equation ($f_d=f_s[\frac{\vartheta-\vartheta_d}{\vartheta-\vartheta_d}]$) to calculate different frequencies and velocities.	Student Book Example, Problem 1 Practice Problem Q.(2,3,4)	30 → 31 32 32
	24	1 PART Use the relation between resonance length and wave-length to solve problems for closed and open pipes.	Student Book Example, Problem 2 Practice Problem Q.(15,16)	36 → 37 40 40
		2 PART Apply the equation for illuminance of a point source to numerical problems.	Student Book Example, Problem 1 Practice Problem Q.(3,5,6)	55 56 56
*	قد تظهر الأسئلة بترتيب مختلف في الامتحان الفعلي، أو على ورقة الامتحان. / Questions might appear in a different order in the actual exam, or on the exam paper.			
**	كما وردت في كتاب الطالب وLMS والخطة الفصلية. / As it appears in the textbook, LMS, and (Main_IP).			