Academic Year العام الدراسي	2024/2023
Term الفصل	3rd
Subject الموضوع	Physics الفيـــــزياء
Grade الصف	09
Stream	Advanced/المتقدم
Code	INSPIRE
Number Of MCQ عدد الأسئلة الاختيارية	15
Markes of MCQ علامة كل سؤال	4
Number of FRQ عدد الأسئلة المقالية	4
Marks Per FRQ علامة كل سؤال	(8-12)
Type of All Questions نوع كافة الأسئلة	MCQ / الأسئلة الموضوعية FRQ/الأسئلة المقالية
Maximum Overall Grade العلامة الكاملة	100
Exam Duration الزمن الكلي للامتحان	150 min.
Mode of Implementation طريقة التطبيق	Paper-Based
Calculator	Allowed

Question* السؤال*		Learning Outcome/Performance Criteria** ناتج التعلم/ معايير الأداء**	المرجع في كتاب الطالب (النسخة الانجليزية) Reference(s) in the Student Book (English Version) Example/Exercise/مثال/تمرين	Page/صفحة
MCQ/الأسئلة الموضوعية	1.	Explain Kepler's Second Law which states that an imaginary line from the Sun to a planet sweeps out equal areas in equal time intervals.	Student Book	165
	2.	Explain the law of universal gravitation and write it in equation form $\left[F_g=G\frac{m_1m_2}{r^2}\right]$	Student Book	168
	3.	Calculate the orbital period of a satellite.	Example Problem (2) Check your Progress Q.8	175 172
	4.	Explain Kepler's First Law which states that the planets follow elliptical paths with the sun at one focus.	Student Book	165
	5.	Define gravitational force as the force of attraction between two objects of given mass.	Student Book	168
	6.	Identify work as a scalar quantity measured in N.m or Joule (J).	Student Book	188
	7.	Illustrate when work is positive, negative or zero with suitable examples.	Student Book Practice Problem (9)	189 193
	8.	Determine graphically the work done by a force from the area of force versus displacement graph.	Student Book	191
	9.	Apply the relationship between power, the work done by a force, and the time interval in which that work is done ($P=\frac{W}{\Delta t}$)	Example Problem (3) Practice Problem (17)	197 197
	10.	Relate the rotational kinetic energy to the object's moment of inertia and it's angular velocity: ($K_{rotational}=\frac{1}{2}I\omega^2$)	Student Book	201
	11.	Relate the gravitational potential energy to the mass of the object and its height above or below a reference level ($GPE=mgh$)	Example Problem (4)	204
	12.	Apply the law of conservation of mechanical energy to solve problems ($KE_i+PE_i=KE_f+PE_f$).	Example Problem (5) Check your Progress Q.51	212 217
	13.	Define kinetic energy and apply the relationship between a particle's kinetic energy, mass, and speed ($KE=\frac{1}{2}mv^2$).	Student Book	200
	14.	Describe the relationship between the velocity of a fluid and the pressure it exerts according to Bernoulli's principle	Student Book Check your Progress Q.38	249-250 251
	15.	(1) Recall Pascal's principle. (2) Apply Pascal's principle to hydraulic systems to solve problems.	Student Book	244
FRQ - الأسئلة المقالية	16	(1) Apply the relationship between a force $\vec{F}$ and the work done on a system by the force when the system undergoes a displacement $\vec{d}$, $W=\lvert\vec{F}\rvert\times\lvert\vec{d}\rvert\cos(\theta)$ where θ is the angle between the direction of the force and the direction of displacement. (2) Apply the work–energy theorem to relate the net work done on a system and the resulting change in kinetic energy	Example Problem (1) Example Problem (2) Practice Problem (11)	192 193 196
	17	(1) Apply the law of conservation of mechanical energy to solve problems ($KE_i+PE_i=KE_f+PE_f$). (2) Apply the law of conservation of energy to examples like roller coaster rides, ski slopes, inclined planes/ hills, and pendulums	Example Problem (5) Practice Problem (41)	212 213
	18	(1) Explain Kepler's First Law which states that the planets follow elliptical paths with the sun at one focus. (2) Explain Kepler's Second Law which states that an imaginary line from the Sun to a planet sweeps out equal areas in equal time intervals. (3) Explain Kepler's Third Law which states that the square of the ratio of the periods of any two planets revolving about the Sun is equal to the cube of the ratio of their average distances from the Sun and write it in equation form $\left[\left(\frac{T_A}{T_B}\right)^2=\left(\frac{r_A}{r_B}\right)^3\right]$. (4) Explain the law of universal gravitation and write it in equation form $\left[F_g=G\frac{m_1m_2}{r^2}\right]$	Student Book	165-168
	19	(1) Calculate the orbital period of a satellite. (2) Define pressure as the perpendicular component of a force on a surface divided by the area of the surface: $\left(P=\frac{F}{A}\right)$	Example Problem (2) Check your Progress Q.8 Example Problem (1) Practice Problem (3)	175 172 234 235

* Questions might appear in a different order in the actual exam, or on the exam paper./قد تظهر الأسئلة بترتيب مختلف في الامتحان الفعلي، أو على ورقة الامتحان.

** As it appears in the textbook, LMS, and (Main_IP)./كما وردت في كتاب الطالب وLMS والخطة الفصلية.