2021 Sec 3 Physics End-of-Year Examination

Topics & Guidelines for Revision

Name: …………………………… **(　)** **Class: 3/** …… **Date:** …………

2021 Sec 3			T3 week			Break	T4 week		
Topical Notes	**Practicals/ Hands-On activities/ *Textbook***	**Assignments**	**8**	**9**	**10**		**1**	**2**	**3**
1 **Physical Quantities & Measurements** (including graphical skills)	P01: Measurement	AS 1: Physical quantities & measurements							
2 **Reflection** • Laws of reflection • Image in plane mirror • Reflection ray diagrams for a light ray, cone of light	P02: Reflection (First surface mirror) *Read Chapter 13 in textbook (p.250-281)*	AS 2: Reflection							
3 **Refraction** • Laws of refraction • Refractive index • Refraction ray diagrams Total internal reflection	P03: Refraction (Glass block) *Read Chapter 13.2*	A3.1: Refraction							
		A3.2: Total internal reflection							
4 **Lenses** • Thin lens, magnification of images, ray diagrams Lens formula	P04: Convex lens *Read Chapter 13.3*	A4.1: Lenses							
		A4.2: Lens formulae							
5 **Kinematics** • Speed, velocity, acceleration • Graphical analysis • Free-fall • Equations of motion	P05: Pendulum P06: Rolling marble *Read Chapter 2 (textbook)*	AS5.1: Speed, Velocity and Acceleration							
		AS5.2: s-t & v-t graphs							
		AS5.3: Equations of motion							
6 **Dynamics** • Types of forces, free-body diagram, balanced & unbalanced forces • Newton's 1st, 2nd & 3rd laws of motion • Vector addition • Vector resolution	P07: Forces in equilibrium *Read Chapters 3 & 4*	AS6.1: Types of forces & free-body diagrams							
		AS6.2: Newton's 1st law							
		AS6.3: Newton's 2nd & 3rd laws							
		AS6.4: Vector addition of forces							
7 **Turning effect of forces** • Moment of a force • Principle of moments • Centre of gravity & stability	P08: Balancing masses P09: CG of triangular card HO1: Turning effect *Read Chapter 5 in textbook*	AS 7.1: Moments							
		AS 7.2: CG & Stability							

Note:

- *Track your progress using "✓" (planned) and "X" (revised) against each item.*

- *Also read up on **Glossary of Terms** & **Mathematical Skills** in <u>Building a Strong Foundation in Physics</u> notes (given in Jan 2021).*

	T1 WA1	T2 WA 2	T3 WA3	EOY Exams
Weighting	10 %	15%	15 %	**60 %**

Schedule & Format for Physics Papers

Date	Time (duration)	Paper (marks)	Structure & marks	Remarks
8 Oct Friday	**0845 to 0930h** (45 min)	**Paper 1 (30 marks)**	• 30 MCQ • **Shade** all answers on Optical Answer Sheet (OAS) using 2B pencil.	Shade the answers along the way. **Do NOT wait till end of paper to start shading!**
	1030 to 1215h (1 hour 45 min)	**Paper 2 (70 marks)**	**Section A** (40 marks) • short structured questions	Answer all questions in the spaces provided. *Spend about __1 hour.__*
			Section B (30 marks) • 3 long questions • 3rd question option (**choose Either / Or**)	Answer all questions in the spaces provided. *Spend about __45 min.__*

Advice for Exam Preparation

• Plan (by date/week) and start your revision **before** end of Term 3 so that you have sufficient time to
   ▪ cover all topics thoroughly (notes & assignments),
   ▪ have a quick review of past assessments (quizzes, exams, etc.) and
   ▪ **do summary notes for key/difficult topics**
   ▪ practise questions from previous years' EOY papers and physics workbook/past-year series.
• Be prepared to handle questions for all **Specific Instructional Objectives** (on first page of topical notes). Also refer to **textbook** "All about Physics" for detailed explanations, worked examples and additional practice **questions** (at the end of each topic).

General Advice for Exam Day

• Get ready your scientific **calculator** (in good working order), a mathematical set (including **protractor**, & **set square**) and a **30 cm semi-transparent ruler**.
• Have sufficient sleep/rest the day before the paper.
• Ensure you have a spare pen, **2B** pencil and eraser.
• **You are NOT allowed** to use any correction fluid/tape in the exam venue.
• **Manage your time carefully during the papers!** (Every 1 mark is about 1.5 minutes of work.)

Problem Solving Approach in Physics :   I SEE*

Adapted from University Physics (with Modern Physics) by Young and Freedman, 2008 (12th Edn).

IDENTIFY the relevant concepts Try to **understand** the physics of the problem first	1. identify the required variable(s) 2. recall related physical laws/principles, formulae and equations 3. recall similar systems in related topics
SET UP the problem	1. Sketch a **diagram** (this is usually helpful). 2. Choose & __state__ the **equations** or **formulae** you'll use to solve the problem. 3. Try to keep expressions algebraic (using **suitable symbols**) rather than numerical.
EXECUTE the solution	1. List known and unknown **quantities**. 2. Solve the equations for the unknowns. 3. Show your **working** underline neatly and clearly on the page, and explain what you are doing and why you are doing it.
EVALUATE the answer	1. Check the __units__ of your answer. 2. Generally, **use 2 or 3 significant figures** in your **final** numerical answer (keep more s.f.s for intermediate steps). 3. Check the **magnitude** of your answer against common sense or other knowledge.