

# AP PHYSICS ASSIGNMENT SHEET: UNIT 5 - MECHANICAL WAVES AND SOUND

MR. DARLINGTON

Topic (Percent of AP Exam)	Reading HW	HW Problems																	
<b>III. MECHANICAL WAVES AND SOUND (10%) [C1], [C4]</b>																			
<b>11. VIBRATIONS AND WAVES (5%) [C1]</b>																			
<b>11.1 Simple Harmonic Motion</b>	11.1	<table border="1"> <thead> <tr> <th>Chapter 11</th> <th>Chapter 6</th> </tr> <tr> <th>page 317</th> <th>page 318</th> <th>page 163</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>23</td> <td>37</td> </tr> <tr> <td>14</td> <td>26</td> <td>39</td> </tr> <tr> <td>13</td> <td>31</td> <td>42</td> </tr> <tr> <td>15</td> <td>32</td> <td></td> </tr> </tbody> </table>	Chapter 11	Chapter 6	page 317	page 318	page 163	7	23	37	14	26	39	13	31	42	15	32	
Chapter 11	Chapter 6																		
page 317	page 318	page 163																	
7	23	37																	
14	26	39																	
13	31	42																	
15	32																		
*Definitions of vibrations, periodic motion, equilibrium position, displacement, amplitude, period and frequency																			
*Description of the motion of an oscillating spring																			
*Definition of simple harmonic motion																			
<b>11.2 Energy in the Simple Harmonic Oscillator</b>	11.2																		
*Description of the total energy of a simple harmonic oscillator.																			
<b>11.4 The Simple Pendulum</b>	11.4																		
*Derivation of the period of a simple pendulum																			
<b>11.7 Wave Motion and Sound (5%) [C4]</b>	11.7	Chapter 11																	
*A wave pulse and a periodic wave are defined		page 318																	
*A periodic sinusoidal wave is described		41																	
*Equation for wave velocity in terms of its frequency and wavelength		page 319																	
<b>11.8 Types of Waves: Transverse and Longitudinal</b>	11.8	55																	
*Definition, characteristics and examples of longitudinal, transverse and surface waves		57																	
<b>11.9 Energy Transmitted by Waves</b>	11.9	59																	
*Describe the relationship between energy of a wave and its amplitude																			
<b>11.11 Reflection and Interference of Waves</b>	11.11																		
*Description of the behavior of waves at a boundary																			
*Distinguish between constructive and destructive interference																			
*The principle of superposition is stated																			
<b>11.12 Standing Waves</b>	11.12																		
*Definition of standing waves																			
*Calculation of the fundamental frequency and overtones																			
<b>12. SOUND [C4]</b>		Chapter 12																	
<b>12.1 Characteristics of Sound</b>	12.1	page 348																	
*The speed of sound in air as a function of temperature is given		34																	
*The pitch of a sound is defined as its frequency		36																	
*Ultrasonic and infrasonic sound waves are defined		46																	
<b>12.5 Sources of Sound</b>	12.5	49																	
*The origin of sound in musical instruments is described		page 349																	
*The resonant frequencies in stringed instruments is described		55																	
*Standing waves are described for a tube open at both ends and for a tube closed at one end.		page 350																	
*Overtones are defined and calculated		76																	
<b>12.7 Interference of Sound Waves; Beats</b>	12.7																		
*The interference of sound waves and the formation of beats are discussed																			
<b>12.8 Doppler Effect</b>																			
*The equations relating frequencies are derived for relative motion between source and observer.																			
<b>VIBRATIONS AND WAVES, WAVE MOTION AND SOUND EXAM AND PROBLEM SET DUE DATE: FRIDAY, DECEMBER 7</b>																			