1. Two pendulums (A and B) have the same length but the mass of A is twice the mass of B. Their periods are $T_A$ and $T_B$. Which is correct?
(a) $T_A = T_B$  
(b) $T_A = 2T_B$  
(c) $T_A = \frac{1}{2} T_B$  
(d) $T_A = \sqrt{2} T_B$  
(e) $T_A = \frac{1}{\sqrt{2}} T_B$

$T = 2\pi \sqrt{\frac{L}{g}}$ independent of mass → **correct answer is (a)**

2. Standing waves are produced by the superposition of two waves with
(a) Same amplitude, frequency, and direction of propagation
(b) Same amplitude and frequency, but opposite direction of propagation
(c) Same amplitude and direction of propagation, but different frequencies
(d) Same amplitude, different frequencies, but opposite direction of propagation

**Correct answer is (b).** See Figure 12.15 in the book

3. Pressure is measured at different depths for four different liquids (A, B, C, and D). The results are plotted in the figure. The liquid with the smallest density is....
(a) A  
(b) B  
(c) C  
(d) D

$p = p_0 + \rho gd$ (where $d =$ depth). Smallest pressure variation for smallest $\rho$ → **Correct answer is (d)**
4. A horizontal pipe with water flowing through it has a circular cross section that varies in diameter. The diameter at the wide section is \(3\sqrt{2}\) times the diameter at the narrow section. If the rate of flow of the water in the narrow section is 9 liters/minute, the rate of flow of the water in the wide section is

(a) 1 liter/min   (b) 3 liters/min   (c) 9 liters/min   (d) 18 liters/min   (e) 36 liters/min

The same mass (or volume) of fluid must flow in all sections of the pipe in a given time → Correct answer is (c)

5. An incompressible metal object drops in a lake and sinks to the bottom. The density of the water in the lake is the same everywhere. As the object sinks deeper and deeper below the surface, the buoyant force on it

(a) increases   (b) decreases  (c) stays the same and it is smaller than the weight of the object   (d) stays the same and it is larger than the weight of the object

The buoyant force \(F_B\) equals the weight of the displaced fluid. The same volume of fluid is displaced as the object sinks. Since the density of fluid is constant (does not depend on depth), \(F_B\) is constant. Since the body sinks, \(F_B < \text{weight of object} \) → Correct answer is (c)
Summer 2007
Score Distribution Histogram Report On QUIZ2

Course #: Phys 6B
Course Title: Phys 6B
Day/Time:

Instructor: Campagnari
Description: Summer 2007
Term/Year:

No. of students in this group: 78
Student group from: All Students
Total Possible Points: 5.00 Highest Score: 5.00 Mean Score: 3.31
Standard Deviation: 0.99 Lowest Score: 1.00 Median Score: 3.23

No. of Students

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## Summer 2007

### Standard Item Analysis Report On Quiz2 Version A

**Course #:** Phys 6B  
**Course Title:** Phys 6B  
**Day/Time:**  
**Instructor:** Campagnari  
**Description:** Summer 2007  
**Term/Year:**  
**Total Possible Points:** 5.00  
**Median Score:** 3.23  
**Highest Score:** 5.00  
**Standard Deviation:** 0.99  
**Mean Score:** 3.31  
**Lowest Score:** 1.00  
**Student in this group:** 78  
**Reliability Coefficient (KR20):** 0.20  
**Student Records Based On:** All Students

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