


Course No :	University of Palestine	Instructor: Dr. Hossam Elaqla
Course Title : Medical Physics		Student Name: _____
Date :		Student No.: _____
No. of Questions: 4	Exam	College Name: Dentist
Time : 1 hours	2012	Dept./ Specialist:
	Total grade : 20	Using Calculator (Yes)

Exam Instructions: Answer All Questions.

Question (1):

A: The period T of a simple pendulum is measured in time unit given by : $T = 2\pi \sqrt{\frac{L}{g}}$

, Show that this equation is dimensionally correct.

B: What is the unit of k where x is the distance in the equation $y = (2m) \cos(kx)$

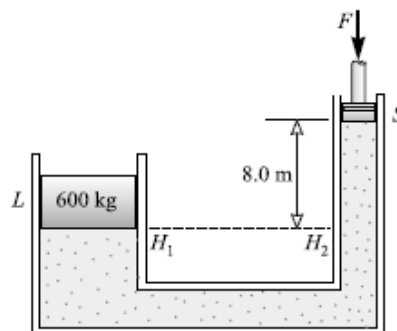
C: Suppose that the acceleration (a) of a particle moving in circle of radius r with uniform velocity v is proportional to the r^n and v^m . Use the dimensional analysis to determine the power n and m.

Question (2):

Four forces that act on a particle are given by $\vec{F}_1 = (25\hat{i} - 30\hat{j} + 13\hat{k})N$, $\vec{F}_2 = (20\hat{j} + 3\hat{k})N$, $\vec{F}_3 = (2\hat{i} - 3\hat{j} + 3\hat{k})N$ and $\vec{F}_4 = (25\hat{i} - 30\hat{j})N$. Find their resultant vector. Also find the magnitude of the resultant.

Question (3):

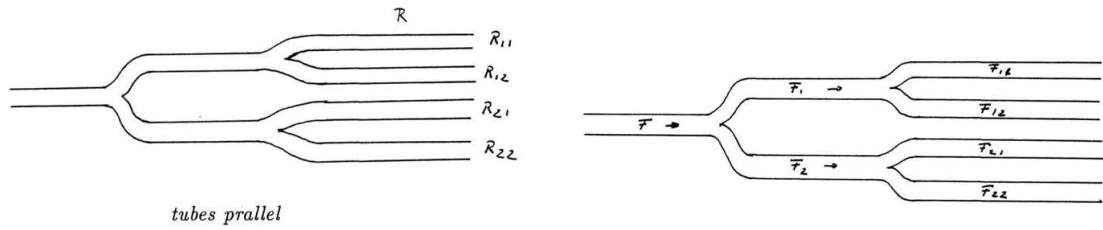
For the system in figure, the cylinder on the left, at L, has a mass of 600 kg a cross-sectional area of 1200 cm^2 . The piston on the right, at S, has a cross-sectional area of 250 cm^2 and a negligible weight. If the apparatus is filled with oil ($\rho = 0.78 \text{ g/cm}^3$), find the force F required to hold the system in equilibrium as shown.



Question (4):

The resistance R of the flow F is determined by the pressure difference ΔP between two point in a tube, as : $R = \frac{\Delta P}{F} \left[\frac{mmHg}{l/s} \right]$

Write the expression of R_{total} as a function of R_{11} , R_{12} , R_{21} , R_{22} , and F_{total} as a function of F_{11} , F_{12} , F_{21} , F_{22} .



tubes prallel

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