海洋大學河海工程學系 2005 工程數學（四）第五次作業
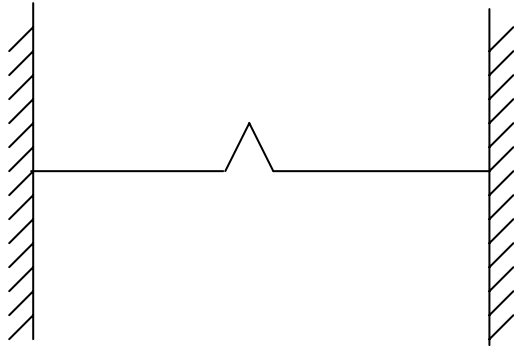
1.

$$\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial t^2}, 0 < x < 2\pi, 0 < t < \infty$$
$$u(0,t) = 0$$
$$u(2\pi,t) = 0$$
$$u(x,0) = \phi(x)$$
$$\dot{u}(x,0) = 0$$

Initial displacement disturbance acemeat

$c(t)$ $b(t)$

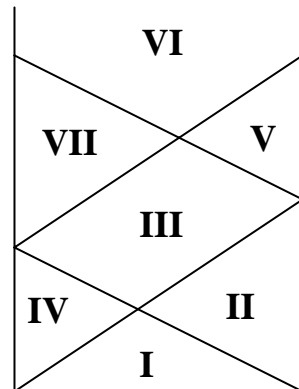$$\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial t^2}, 0 < x < 2\pi, 0 < t < \infty$$
$$u(0,t) = c(t)$$
$$u(2\pi,t) = b(t)$$
$$u(x,0) = 0$$
$$\dot{u}(x,0) = 0$$

Support motion

Please find $u^{\mathrm{I}}(x,t)$ $u^{\mathrm{II}}(x,t)$ $u^{\mathrm{III}}(x,t)$ $u^{\mathrm{IV}}(x,t)$.

2. Please learn to find data on ***Hugen's principle*** and write down few words to describe the ***Hugen's principle .***