

time : 50 minutes

Do all 3 questions. All count equally.

1. Explain briefly the conditions for efficiency in an economy in which some goods are non-rival.

2. Describe briefly a tax mechanism which would induce people to reveal truthfully how much they are willing to pay for a public project.

3. What are the efficient allocations in a two-person economy, in which the production possibility frontier has the equation

$$x_1 + x_2 + z_1 = 100$$

where  $x_1$  is person 1's food consumption,  $x_2$  is person 2's food consumption, and  $z_1$  is person 1's cigarette consumption, if the two people have utility functions

$$U^1(x_1, z_1) = x_1 + 21z_1 - (z_1)^2$$

$$U^2(x_2, z_1) = x_2 - (z_1)^2 \quad ?$$