

**28. Incorrect. The answer is true not false.** In Hartwicks' stylized model with constant returns to scale, neoclassical assumptions for the production function and no labor growth output can be used for consumption, can be added to the capital stock, or used to extract the resource which costs  $a$  per unit extracted. Writing this accounting relationship in per capita terms yields:

$$q_t = c_t + \dot{k}_t + ar_t$$

Saving or investment in producible capital equals all the resource rent under the Hartwick's rule yields:

$$\dot{k} = (f_r - a)r_t$$

To see what happens to output per capita under Hartwick's rule, take the total time derivative of  $q(k,r)$  as follows:

$$\dot{q} = f_r \dot{r} + f_k \dot{k}$$

Invest all the rents or substitute the Hartwick rule for  $\dot{k}$  into the above equations to get:

$$\dot{q} = f_r \dot{r} + f_k (f_r - a)r_t = f_r \dot{r} + f_k f_r r_t - f_k a r_t$$

Hartwick shows that the  $\dot{q}$  in the above equation equals zero along an efficient investment path or there is constant income per capita.