BACHELOR OF ARTS EXAMINATION, 2017
(3RD Year , 5th Semester)
ECONOMICS (HONOURS)
PUBLIC ECONOMICS

Time: 2 Hours   Full Marks:30

Answer any **three** questions

1. Are the following statements true or false?   5X2=10
   a. The theory of optimal commodity taxation argues the equal tax rates should be set across all commodities so as to maximize efficiency by "smoothing taxes".
   b. If the number of visits to the club cannot be controlled directly, then two part tariff is required . Explain with a suitable model.

2. Consider an economy with a single consumer whose preferences are given by $U = \log(x_1) + \log(x_2) - \lambda$, where x_1 and x_2 are the consumption levels of good 1 and 2 and λ is labour. Assume that both goods are produced using labour alone, subject to constant returns to scale technology. Units of measurement are chosen so that the producer prices of both goods and wage rate are equal to 1.
   a. Using L to denote the consumer's endowment of time and l to denote leisure, explain the budget constraint

   $$q_1 x_1 + q_2 x_2 + wl = wL$$

   b. Show that the consumer's demands satisfy the conditions required for the inverse elasticity rule to apply.
   c. Use the inverse elasticity rule to conclude that both goods should be subject to the same level of tax.
   d. Calculate the tax required to obtain a level of revenue of R=1.   [1+4+3+2]

3. a.   Suppose the government of India wants to impose tax on use of plastic bags. In West Bengal   [3]

   the demand elasticity for plastic bags is -2.8 and in Maharashtra the demand elasticity is -1.56. Where will the tax inefficiency be greater? Explain.

   b. Show that a tax function is average- rate progressive if MRT>ART.   [2]

   c. Consider the utility function of an individual given by:

[Turn over

Show that the effect of income tax, at rate t, on labour supply depends on the elasticity of marginal utility of income. If the utility function is Cobb-Douglas type, then what will be the effect of income tax on labour supply? [4+1]

4. a. With a simple two period life cycle model show that response of savings to income tax depends on the wealth elasticity of first period consumption (η), elasticity of substitution (σ) and savings rate (s). [8]

   c. If $\sigma = \frac{1}{3}, s = \frac{1}{4}, p = \frac{3}{5}$ then find out the condition when savings fall with income tax. [2]

5. a. Explain the key difference between the positive economics and normative economics. Give an example of both types of analysis. [4]

   b. Summarize the main differences between pure private and pure public goods. Explain why in case of pure public goods private markets are likely to fail to achieve efficiency. [6]

6. I. There are 2000 television set owners in a locality. A transmission of a television is such that everyone who owns a television set is able to view the network's broadcasts. The network has to decide whether to produce one new mega serial. Each episode is valued at Rs. 5 by each television set owner. That is, each television set owner will be willing to pay maximum Rs. 5 to view each episode of the show. Total cost of producing each episode is Rs. 60,000. At most 30 episodes can be produced.
   a. Is consumption of new serial rival. Explain. [1]
   b. What is the optimum number of episodes that will be produced by a utilitarian social planner? Give proper justification. [4]

II. A chemical producer dumps toxic waste into a river. The waste reduces the population of fish, reducing profits for the local fishery industry by Rs. 1,50,000 per month. The firm could eliminate the waste at a cost of Rs. 1,00,00 per month. The local fishing consists of many small firms.
   a. Apply the Coase theorem to explain how costless bargaining will lead to a socially efficient outcome, no matter to whom property rights are assigned (either to chemical firm or fishing industry). [5]