

**time=2 hours**

The exam contains two sections, *A* and *B*. Section *A* is worth 40 % of the marks, section *B* 60 %. Note that there is some choice in each section.

**A : 40 % ( 5 % per question )**

Explain **briefly** the significance for the economics of taxation of any **8** of the following 10 terms.

1. output effect of a specific (partial) factor tax
2. backward shifting
3. excess burden of an excise tax
4. optimal income tax
5. comprehensive (“Haig–Simons”) definition of income
6. realized capital gains
7. lock–in effect
8. target saving
9. declining–balance depreciation schedule
10. neutrality of the corporate income tax

**continued**

**B : 60 % ( 15 % per question )**

Answer any **4** of the following 8 questions.

1. What would be the incidence of a 1 dollar unit tax on sandwiches, if the sandwich industry were perfectly competitive, if the supply curve for sandwiches had the equation

$$Q^s = p$$

and the demand curve had the equation

$$Q^D = \frac{1000}{P^2}$$

where  $p$  is the price of sandwiches received by sellers,  $P$  is the price of sandwiches paid by buyers,  $Q^s$  is the quantity of sandwiches (in millions) supplied by sellers and  $Q^D$  is the quantity of sandwiches (in millions) demanded by buyers?

2. How would the total excess burden of a system of excise taxes change, if there already was a tax on one good, and the government decided to increase the tax rate on another good?

3. What is the relation between the optimal tax rate on clothing, and the optimal tax rate on food, for a person whose compensated demand functions for food and clothing are

$$F = (1.5)(P_F)^{-4}(P_C)^{-2}u$$

$$C = (P_F)^{-3}(P_C)^{-3}u$$

where  $P_F$  and  $P_C$  are the prices paid by the consumer for food and clothing, and  $u$  is the level of the person's utility?

**continued**

4. Outline the main respects in which the return to owner-occupied housing is treated differently in the Canadian personal income tax than it would be treated using the Haig-Simons (or “comprehensive”) definition of taxable income.

5. How does the effective marginal tax rate vary with the taxpayer’s income, if the taxpayer is a single parent with one child, under an (imaginary) income tax system with the following rules? :

- the basic tax rate is 40 percent
- the first \$20,000 of a person’s income is not subject to tax [so that the basic tax rate of 40 percent applies only on income in excess of \$20,000]
- parents gets a non-refundable tax credit of \$12,000 per year, for each child
- if the taxpayer’s income is greater than \$60,000, then this tax credit is reduced by 50 cents for each dollar of income in excess of \$60,000
- all income over \$80,000 is subject to an additional tax, equal to 10 percent of any income in excess of \$80,000

6. How would the taxation of the return to saving affect the amount of saving for the following person? The person earns a total labour income of  $Y$  when working, nothing when retired, and the person’s preferences over consumption when working, and consumption when retired can be represented by the utility function

$$U(C_W, C_R) = [C_W]^2 C_R$$

where  $C_W$  is consumption when working and  $C_R$  is consumption when retired.

**continued**

7. How would increases in the corporate income tax rate affect the level of investment by a firm if the firm's investment were financed entirely by borrowing, and if depreciation allowances for all investments declined at a rate of 20% per year, if the actual return to all investments declined at a rate of 10% per year?

[That is, the firm could write off 20% of the investment after one year, 16% after 2 years, 12.8% after 3 years, and so on. And the profits generated in the second year were 90% of the profits in the first year, the profits in the third year were 90% of the profits in the second year, and so on.]

8. How should the Canadian tax system treat the earnings of American subsidiaries of Canadian corporations, if we wanted to maximize total Canadian income?