

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

Autumn Semester I / [2013-14]
Ph.D Entrance Test in ECONOMICS

Full Marks: 100

Date: 1st July, 2013

Time: 3 Hours

There are Two Sections in this question paper. Read the instructions carefully.

Section I

Q1. Write an outline of a possible research proposal that you wish to take up for your Ph.D dissertation, setting out explicitly the research question(s) and/or hypotheses, major objectives, probable data source(s), variables and methodology. [20 Marks]

Answer ANY FOUR of the following questions

[4 × 10 = 40 Marks]

Q2. Show how the price-cost margin differs with the total number of firms in the oligopolistic industry. Derive the Cournot (Nash) equilibrium by considering a linear inverse market demand function $P = a - bQ$; $a > 0$, $b > 0$ and constant marginal cost for each of the firms. Prove that the Cournot equilibrium is stable. What is the stability condition? [10 Marks]

Q3. Consider a simple Keynesian model with an investment function $I = I_0 + bY$ where $1 > b > 0$ and a saving function $S = sY$; where $1 > s > 0$. By how much will total savings change if there is a change in marginal propensity to save? Also depict its impact on the economy's output level? Explain the dynamics in the IS-LM model. Specify an open-economy IS-LM model and deduce the aggregate demand (AD) curve. [10 Marks]

Q4. Consider a consumer with preferences over consumption when young and old that are represented by the following utility function: $u(c_1, c_2) = c_1^{0.4} c_2^{0.6}$. Suppose that the consumer can work both the periods. The wages earned when young are $w_1 = 10$ and when old are $w_2 = 5$. Suppose that the discount rate applicable is 20 percent. What are the utility maximizing values for (c_1, c_2) ? If government imposes income tax of 15 percent in the first period, what will be the change in utility maximizing consumption bundle, if any? [10 Marks]

Q5. Suppose that you estimate the consumption function $Y_i = \alpha_1 + \alpha_2 X_i + u_{1i}$ and the savings function $Z_i = \beta_1 + \beta_2 X_i + u_{2i}$, where Y = consumption, Z = savings, X = income and $X = Y + Z$. What is the relationship, if any, between α_2 and β_2 ? Show your calculations. Explain whether the residual sum of squares will be the same for the two models? Can you compare the R^2 terms of the two models? Why or why not? [10 Marks]

Q6. Critically examine the various poverty alleviation programmes initiated by Government of India in the recent past. [10 Marks]

Q7. Identify the external costs and benefits resulting from the use of biofuels as a close substitute for gasoline. How would the use of biofuels impact the market for gasoline? [10 Marks]

Section II

Q8. Write Explanatory Notes on ANY FIVE of the following.

[5 × 8 = 40 Marks]

- (a) Permanent Income Hypothesis of consumption (savings) theory
 - (b) India's progress towards Millennium Development Goals
 - (c) Absolute and conditional convergence in the Solow growth model
 - (d) Health care financing in India
 - (e) Elasticity of demand and magnitude of Dead Weight Loss under monopoly
 - (f) Asymmetric Information
 - (g) Policy implications of the Harris-Todaro Model of Migration
 - (h) Three major limitations in computation of GDP with special reference to the treatment of environment
 - (i) Commodity derivative
 - (j) Marshall-Lerner Condition
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