Graduate School of Commerce Doctoral Program
September Entrance Examination 2019
Question Sheets

Instructions

1. Do not touch your examination documents until instructed to do so.
2. Confirm that you have received the Question Sheets and separate Answer Sheets.
3. Answer only the two questions from the subjects that you have selected as part of your Admissions Application. (Should you answer the wrong question, the scores for those questions will not be included in your test score.)
4. After receiving the signal to start the examination, write your test subject name in the specified box on your Answer Sheet (upper left corner). Be sure to also provide your examination ID number and name in the designated space.
5. Write your answers on the Answer Sheet provided using only a ballpoint, or other type of pen, in blue or black ink. Erasable ink pens are not allowed.
6. The use of correction fluid or correction tape is allowed.
7. Examinees must use their own writing implements, correction fluid, and/or correction tape, as none are available at the test venue.
8. Examinees will not be allowed to request additional Answer Sheets or have them replaced.

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September Entrance Examination 2019 Question Sheets

Answer only the two questions from the subjects that you have selected as part of your Admissions Application.

[Note]

1) The subject name should be written down on each answer sheet and Draft Paper in the designated space.
2) It is not necessary to write the questions sentence on the answer sheet.

【Organizational Management】

Answer all the following questions.

(1) One of the approaches for firms to respond to increases in environmental uncertainty is to design specific subunits and decentralize decision making responsibilities to them. Explain why this approach of designing specific subunits is effective for eliminating environmental uncertainty. Explain what potential costs of taking this approach would be.

(2) Explain what group think is and what types of groups are more likely to experience group think. In addition, explain what managers should do to avoid group think.

【Strategic Management】

Answer all the following questions.

(1) What is a *transaction cost*? Please explain its concept and the mechanism in which it is incurred.

(2) Firms often internalize transactions with higher transaction costs in the form of vertical integration. Why? Please explain from a transaction-cost perspective.

(3) By contrast, some firms simultaneously make *and* purchase goods or services that are widely available in the market and would incur lower transaction costs. Why does this form create economic value? Please explain.

【Marketing】

Answer all the following questions.

(1) Explain types and characteristics of information flow in new product development process from marketing viewpoint.
(2) Explain significance of channel relationship with an emphasis on conflict management.

【Consumer Behavior】

Answer all the following questions.

(1) Explain the concept of consideration set using the following terms:
memory, intentional search, and decision-making process.
(2) Describe the effects of involvement and product knowledge on consumers' problem-solving processes.

【International Business Studies】

Answer all the following questions.

(1) What risks are present in global transportation? Discuss how exporters and importers can manage these risks.
(2) What is the role of trade terms in global transportation? Describe FCA, CIF, and DDP in the latest Incoterms.

【International Trade】

1. Consider the following Brander-Spencer (1985) model. Inverse demand in country 3 is given by $P = 15 - q_1 - q_2$. (Firm 1 from country 1 will export to country 3 and Firm 2 from country 2 will also export to country 3. There is no producer for this good in country 3. Products are assumed to be homogeneous.) Firm 1 and Firm 2 have common unit costs (constant marginal cost) **3**.

   A) Derive reaction (best response) functions for both firms: $q_1 = R_1(q_2)$ and $q_2 = R_2(q_1)$.

B) Calculate Nash equilibrium for this Cournot conjecture model. Make sure you derive both output levels (strategies) and profits for each firm (payoffs).

C) Suppose Firm 1 has the first mover advantage and is now able to produce before Firm 2 moves. Derive the equilibrium output and profit for this Stackelberg model.

D) Suppose country 2 (government) is a free-trade zealot, so that it has subsidy level $s_2 = 0$. What then is Country 1's optimal (production or export) subsidy, s_1? What outputs do Firms 1 and 2 then produce? Calculate also profits for both firms given the optimal subsidy.

2. Explain the difference between Dixit-Stiglitz (Love of Variety) model and Lancasterian (Ideal Variety) model about the details of how products are differentiated. You can use the following example to explain. Suppose there are 3 restaurants near Waseda University where 300 students eat at lunch time. C = Curry place, F = Fish Dish place, R = Ramen noodle place. All students come to school 3 times a week and all 300 student always eat at one of the 3 places. Use the vector (c,f,r) to indicate how many times a student go to eat at each place in a week. For example, (1,1,1) students eat each place once a week while (3,0,0) students eat at C place all the time. You can use this vector notion to explain the difference between two models.

3. Heckscher-Ohlin Model Question. This question adopts Leontieff technology. Suppose 1 unit of labor and 3 units of capital are used to produce 1 unit of good X and 2 units of labor and 2 units of capital are used to produce 1 unit of good Y. Assume that endowments of labor is 100 units in Home country and endowments of capital is 120 units. (In all the graphs, you shall label all the intercepts and axis. Use x and y for outputs of good X and good Y.)

A) Which good is produced with labor-intensive technology? Write the reasons why.

B) Write down constraints for labor and capital using L_X , L_Y , K_X and K_Y notations.

C) Using input requirement functions, write down the equations that corresponds to PPF (Production Possibilities Frontier).

D) Draw PPF graph. Indicate which area corresponds to PPF. Label intercepts.

E) Suppose the consumers demand is not skewed and looks very normal, calculate the domestic equilibrium quantities. You could assume the

utility function is $u = xy$.

F) Indicate the range of autarky relative price $P = P_X/P_Y$.

G) Suppose Foreign country has larger endowment of capital, 150 units of capital, draw the PPF for this Foreign country and explain the difference between Home's PPF.

H) Suppose the price of X is $5 and price of Y is $6, write down the equations for factor price frontier.

I) Calculate the equilibrium factor prices w and r.

J) Suppose P_X increased 20% to $6, determine new level of factor prices. Explain which factor price increased (or decreased) to what extent and indicate the name of Theorem (that corresponds to this result) among the 4 major Theorems of Heckscher-Ohlin Model.

【Corporate Finance】

Answer all the following questions.

(1) Describe Miller and Modigliani's proposition on dividend irrelevance.

(2) Explain how interest tax shields contribute to the value of stockholders' equity.

(3) Discuss some examples of conflicts of interest that may arise between bondholders and stockholders when a firm is in financial distress.

(4) Explain the pecking order theory of capital structure.

【Asset Pricing】

Answer all Questions (1) – (5) below.

Settings: An individual is going to live for three periods from now on. She chooses consumption levels c_0, c_1, c_2 at the beginning of each period sequentially. Today is the beginning of the period 0, and she has a positive amount A_0 of a financial asset that is the only asset available through the time. She has no other sources of income. Her objective function, an expected utility, and constraints are given as follows:

$$u(c_0) + \beta E_0[u(c_1) + \beta u(c_2)], \quad (1)$$

$$A_2 \geqq c_2 \geqq 0, A_1 \geqq c_1 \geqq 0, A_0 \geqq c_0 \geqq 0, \quad (2)$$

$$A_2 = R_2(A_1 - c_1), A_1 = R_1(A_0 - c_0), A_0 > 0, \quad (3)$$

where $u(c)$ is a utility function, twice continuously differentiable, and $u'(c) > 0$ and $u''(c) < 0$ for $c > 0$, and β is a time-discount factor taking a value between zero and one, $0 < \beta < 1$. Investments in the financial asset during the period t-1 earn a rate of return r_t, t=1 and 2. Namely, if she invests an amount $(A_{t-1} - c_{t-1})$ at the beginning of the period t-1, then at the beginning of the next period t she is going to obtain $R_t (A_{t-1} - c_{t-1})$, as is shown in (3), where $R_t = (1+r_t)$. Assume the gross rate of investments, R_1 and R_2, are statistically independent, and take positive values. $E_0[x]$ represents expectation for a random variable x at the beginning of the period 0 (today).

Questions:

(1) Suppose she stands at the beginning of the last period 2, and that past consumptions (c_0 and c_1) and amounts of the asset (A_1 and A_2) are already determined. What is the optimal consumption c_2^*?

(2) Suppose she stands at the beginning of the period 1, and both past consumption c_0 and an amount of the asset A_1 are already determined. She is going to choose the optimal consumption $c_2^*(A_2)$ at the beginning of the period 2, as is obtained in Question (1). Anticipating this optimal choice, she, standing at the beginning of the period 1, chooses the optimal consumption c_1^* so as to maximize the following:

$$u(c_1) + \beta E_1[u(c_2^*)], \quad (4)$$

where $E_1[x]$ represents conditional expectation for a random variable x at the beginning of the period 1. What is the necessary condition the optimal consumption c_1^* to be satisfied?

For the remaining Questions (3) - (5), assume that the utility is natural logarithmic; $u(c)=\ln(c)$.

(3) Solve your condition in Question (2) for the optimal consumption c_1^*. That is, how the consumption c_1^* is expressed with pre-determined variables at the beginning of the period 1?

(4) An amount of the asset A_1 determines the optimal consumption c_1^* in the period 1, and both c_1^* and the realizing investment rate of return R_2 determine the optimal consumption c_2^* in the period 2. This implies an amount of the asset A_1 determines a value of the equation (4). Now let's define this relationship as follows:

$$G(A_1) = \ln(c_1^*) + \beta E_1[\ln(c_2^*)]. \quad (5)$$

How the function G in (5) looks like? That is, you need to show G as a function of the variable A_1, $G(A_1) = A_1 + \beta \ln(A_1)$, for example.

Next differentiate the function G with respect to A_1.

(5) The individual stands at the beginning of the period 0. Assume she will follow the optimal consumptions c_1^* and c_2^* obtained in the previous Questions. This implies that the objective function (1) can be written as follows:

$$\ln(c_0) + \beta E_0[G(A_1)], \qquad (6)$$

and an optimal consumption c_0^* is chosen so as to maximize (6). Show the necessarily condition for c_0^* to be satisfied. Next solve the necessarily condition to obtain the optimal consumption c_0^*. You may use a tower law for conditional expectation: $E_0[E_1[x]] = E_0[x]$.

【Financial Accounting 1】

Answer all the following questions.

(1) What is subjective goodwill? Explain.

(2) There are opinions that argue for presenting subjective goodwill in the financial statements and against it. Explain the reasoning for each opinion.

(3) Explain the relationship between the subjective goodwill and realization principle.

【Management Accounting 1】

Answer the all the questions below on the methods of the economic efficiency analysis of investment projects.

(1) Explain briefly both the Internal Rate of Return (IRR) method and the Net Present Value (NPV) method.

(2) When evaluating alternative investment projects, both (IRR and NPV) methods usually result in the same conclusions, but there are some exceptions. In what situations would occur the discrepancy between the results of two methods?

(3) What causes the discrepancy of (2), and how could be eliminated the discrepancy?

(4) Explain the superiority of NPV method to the IRR method.

【Microeconomics】

Answer all the following questions.

1. Consider a firm with the following production function,

$$Q = K^{\alpha}L^{\beta},$$

where Q denotes quantity, K denotes capital, L denotes labor, $0 < \alpha < 1, 0 < \beta < 1$, and $\alpha + \beta < 1$. Let p, r, and w be the product price, the unit cost of capital, and the wage rate. In the following, the short-run means the period in which the amount of capital is fixed while the long-run means the one with flexible amounts of all the production factors. Assume that the firm faces competitive factor markets.

(1) Consider a competitive market. Show the effect of a wage increase on the short-run labor demand.

(2) Suppose that the firm is a monopolist in the product market. Derive the short-run labor demand function. Discuss the implication related to the elasticity of the product demand. Add any structure if necessary.

(3) Consider the profit-maximizing behavior of the firm in a competitive market in the long run. Derive the optimal output, the factor demand functions, and the elasticity of substitution across production factors. Show the second order conditions.

(4) Consider the cost-minimization problem of the firm in a competitive market in the long run. Using the Lagrangian multiplier method, derive the conditional demand functions for the inputs. Show whether the marginal cost increases or decreases in quantity.

2. Consider the market of a homogeneous good. Demand is given by $Q = 10 - 0.5P$, where Q denotes the total quantity and P denotes price. Assume that the cost for production is ${q_i}^2$, where q_i is the quantity produced by firm i.

(1) Consider a duopoly market. Solve for the Cournot Nash equilibrium (show the equilibrium quantities, prices, and profits). Draw a figure to show the reaction curves and the equilibrium.

(2) Solve for the Cournot Nash equilibrium with N symmetric firms.

【Macroeconomics】

Answer all the following questions.

(1) Consider the economy described by the IS-LM model with lump-sum tax, and suppose the government increases government purchases and taxes by equal amounts. Discuss the short-run effects on GDP, consumption, and investment.

(2) Explain the following 3 terms.

a) Classical dichotomy

b) Ricardian Equivalence.

c) Euler equation of the Ramsey-Cass-Koopmans model.

Examinee's Number	
Name	
Subject Name	

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