

Name..... ID.....

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
SECOND SEMESTER 2022-2023

Comprehensive Examination: Part-A (Closed Book)

Course No. : **ECON F341** Max. Marks : **20**
Course Title : **Public Finance: Theory and Policy** Duration : **30 Minutes**
Date : **08/05/2023** Weightage : **10%**
Time : **09.30 AM-12.30 PM**

Instructions:

1. Write the *Name* and *ID Number* clearly on the answer sheet.
2. Part A questions paper carries a total of 20 questions (1 mark each) and Part B carries 8 questions.
3. Answer to Part A (MCQ Type) to be given in the appropriate box in the answer sheet provided only terms of Capital Letters as, A, B, C, or D
4. Part B is short answer-type questions and answers will be written in the box provided below each question.
5. All the questions are compulsory. The exchange of calculators is not allowed. Show all the necessary calculations wherever required. There is no negative marking.
6. Answer the questions once only, no overwritten answer/rewriting is allowed and will be evaluated.

Part-A

Each Question carries 1 mark (20*1=20)

Question	Answer	Question	Answer	Question	Answer	Question	Answer
Q1		Q6		Q11		Q16	
Q2		Q7		Q12		Q17	
Q3		Q8		Q13		Q18	
Q4		Q9		Q14		Q19	
Q5		Q10		Q15		Q20	

Q1) In India sources of tax revenues belong to the Centre while relatively sources of revenue come under the purview of state governments.

- A. Elastic : Inelastic
- B. Inelastic: Elastic
- C. Inelastic: Inelastic
- D. Elastic : Elastic

Q2) A tax system in which average tax rates fall as income rises is a _____ tax system; the way in which the average tax rate changes as income rises is a measure of _____ equity.

- A. regressive; vertical
- B. regressive; horizontal
- C. progressive; vertical
- D. progressive; horizontal

Q3) Suppose there is a 20% tax on the first ₹15,000 of taxable income, a 30% tax on taxable income above ₹15,000 until ₹30,000, and a 40% tax on all taxable income above ₹30,000. There is a ₹3,000 exemption per person. What is the marginal tax rate for a single mother making ₹35,000 who has one child?

- A. 20%
- B. 30%
- C. 31.7%
- D. 40%

Q4) The construction materials and labor costs for a new city hall will cost ₹14 million. The maintenance costs are estimated at ₹30,000 per year. What is the first-year cost, assuming 6% discount rate?

- A. ₹30,000
- B. ₹14 million
- C. ₹14.5 million
- D. ₹233.8 million

Q5) When firms in a polluting industry have different costs for the technology to reduce pollution, which of these is efficient?

- A. mandating equivalent reductions in the quantity of pollution emitted from all firms
- B. mandating that each firm reduce pollution up to the point at which the marginal cost of reducing pollution is equal to the total social benefit of the reductions for each firm
- C. mandating that each firm reduce pollution up to the point at which the marginal cost of reducing pollution for each firm is equal to the marginal social benefit of the reductions
- D. mandating that each firm reduce pollution up to the point at which the marginal benefit of doing so is zero

Q6) All else equal, the deadweight loss of a tax on producers is higher when supply is _____. All else equal, the deadweight loss of a tax on producers is higher when demand is _____.

- A. elastic; elastic
- B. unit elastic; elastic
- C. inelastic; inelastic
- D. elastic; inelastic

Q7) Suppose that a monopolist has a cost function given by $C(q) = 20 + 4q + 2q^2$. The (inverse) demand for the product is given by $P(q) = 40 - q$. The government levies a tax of ₹6 per unit, to be paid to the government by the monopolist. What is the new market price and quantity?

- A. quantity = 6; price = ₹34
- B. quantity = 7; price = ₹33
- C. quantity = 10; price = ₹10
- D. quantity = 5; price = ₹35

Q8) Sanya, a wealthy businesswoman, and Raman, a poor production worker, share a 10-acre plot on which each owns a home— Sanya a mansion and Raman a bungalow. Though Sanya and Raman value the property equally, only Sanya pays for upkeep, reflecting her less stringent budget constraint. Assuming neither party is altruistic or susceptible to the warm glow phenomenon, Sanya and Raman will fail to achieve a social optimum because:

- A. each will free ride on the other.
- B. Sanya, in her expenditures on upkeep, will not take into account Raman's interests.
- C. in the absence of altruism, social optima are unobtainable in the private market.
- D. Raman fails to contribute his fair share.

Q9) In competitive federalism, the relationship between the Central and state governments is and between state governments is

- A. horizontal: horizontal
- B. vertical: horizontal
- C. horizontal: vertical
- D. vertical: vertical

Q10) The private marginal benefit of a product's consumption is $PMB = 200 - 2Q$, and the private marginal cost of its production is $PMC = 2Q$. The production causes a negative externality, and the government imposes a ₹400 tax in an effort to internalize the externality. What is the marginal external damage of this good's production?

- A. ₹50
- B. ₹100
- C. ₹200
- D. ₹400

- Q11) According to the Tiebout model, how would someone respond if they didn't like the level of services provided in their community?
- They would use voter initiatives to change the level of services.
 - They would vote out the local officials in the next general election.
 - They would vote out the local officials by calling a recall election.
 - They would move to a different community.
- Q12) Suppose a tax is imposed on the purchasers of couches. Assume that demand for couches is perfectly elastic and that the supply is elastic, but not perfectly elastic. The couches are produced in a factory using capital equipment and labor. The supply of labor is perfectly elastic and the supply of capital equipment inelastic in the short run. In the short run, partial equilibrium tax incidence analysis suggests that _____ bear the tax; general equilibrium tax incidence analysis suggests that _____ bear the tax.
- consumers; couch factories
 - consumers; capital owners
 - couch factories; capital owners
 - couch factories; couch factories
- Q13) Assume that private firms already provide some quantity of a public good in the absence of government intervention. If the government begins to provide the public good, it is likely that:
- private provision of the good will be unaffected, and the overall provision of the good will increase.
 - taxpayers will refuse to support public provision of a good that is already privately provided.
 - private provision of the good will be crowded out by its public provision.
 - private provision of the good will be crowded in by its public provision.
- Q14) What will be the primary deficit, given the revenue receipt=₹ 1633920, total expenditure=₹3509836, recovery of loans= ₹ 19729, interest payment= ₹ 679869 and other receipts=₹ 37897?
- ₹ 1138224
 - ₹ 1817291
 - ₹ 1138421
 - ₹ 1818291
- Q15) Smita's health insurance policy has a deductible of ₹1,000, a ₹10 copayment on doctor visits, and coinsurance of 10% on all expenses other than those for which there are copayments. If Smita went to the doctor four times (doctor's fee is ₹40 per visit) and had a surgery that cost ₹2,000, how much of these expenses did Smita pay directly?
- ₹40
 - ₹1,000
 - ₹1,040
 - ₹1,140
- Q16) The inverse elasticity version of the Ramsey Rule suggests that the government should tax:
- only those goods with the lowest elasticities of demand.
 - all goods at the same rate.
 - a wide variety of goods but most heavily tax goods with high elasticities of demand.
 - a wide variety of goods but most heavily tax goods with low elasticities of demand.
- Q17) Which factor is likely to encourage the private provision of a public good?
- large differences among individuals in their demand for the public good
 - little or no difference among individuals in their demand for the public good
 - the existence of free riders who enjoy the benefits but refuse to pay the cost of the public good
 - the fact that the benefits of the public good are available to everyone

Q18) Matt's utility function is $U = \ln(C)$, where C is consumption. He earns ₹45,000 per year and races stock cars in his spare time. There's a 10% chance that he will crash on the racetrack in the next 12 months and incur medical costs of ₹15,000. He will also have to miss work and will lose about ₹5,000 in earnings. Assume he buys insurance to cover medical expenses and forgone wages. What is an actuarially fair price for this insurance policy?

- A. ₹600
- B. ₹1,000
- C. ₹2,000
- D. ₹4,500

Q19) Suppose the pre-tax price of petrol is ₹ 1 per gallon. An imposed tax of ₹ 0.50 per gallon is paid by producers to the government, increasing the price of petrol to ₹ 1.30 per gallon. The gross price after the tax is ₹ _____; the after-tax price is ₹ _____.

- A. 1.30; 0.80
- B. 1.30; 1.80
- C. 1.80; 1.30
- D. 1.80; 0.80

Q20) Which committee broadly accepted language as the basis of reorganization of states in India.

- A. Rangarajan committee
- B. Fazal Ali committee
- C. Gadgil committee
- D. Yasmaan committee

Space for rough Work

Name..... ID.....

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
SECOND SEMESTER 2022-2023

Comprehensive Examination: Part-B (Closed Book)

Course No.	: ECON F341	Max. Marks	: 28
Course Title	: Public Finance: Theory and Policy	Duration	: 60 Minutes
Date	: 08/05/2023	Weightage	: 14%

Instructions:

1. Write the *Name* and *ID Number* clearly in the answer sheet.
2. Part B is short answer type questions and answers will be written in the box provided below each question.
3. All the questions are compulsory. Answer the questions once only, no rewriting is allowed and will be evaluated.

Part-B

(Part B carries 8 questions)

Q1) Suppose $C = ₹ 35 + 0.80Y_d$, $I = ₹ 70$, $G = ₹ 65$, $T_n = T_x - T_r$, $T_r = 0$ and $T_x = 0.10Y$, given this information answer the following questions.

A. Find the Equilibrium level of output.

[3M]

B. What are tax revenues at equilibrium output? Does the government have a balanced Budget?

Q2) The elasticity of demand for a musical instrument is -2.0 and the elasticity of supply is 3.0 . How much will the price of the instrument change with a per-unit tax of ₹2? Who bears the larger burden of the tax, consumers or producers? [3M]

Q3) Your utility function is $U = \sqrt{C}$ where C is the amount of consumption you have in any given period. Your income is ₹40,000 per year and there is a 2% chance that you will be involved in a catastrophic accident that will cost you ₹30,000 next year. Based on this information, answer the following questions, [3M]

a. What is your expected utility? **b.** Calculate an actuarially fair insurance premium. What would your expected utility be were you to purchase the actuarially fair insurance premium?

Q4) Critically explain the Principle of Maximum Social Advantage along with a diagrammatic presentation. [3M]

Q5) Suppose that demand for a product is $Q = 1,200 - 4P$ and supply is $Q = -240 + 2P$. Furthermore, suppose that the marginal external damage of this product is ₹12 per unit. How many more units of this product will the free market produce than is socially optimal? Calculate the deadweight loss associated with the externality. **[4M]**

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Q6) Mathematically prove the price and output effect of a Unit tax and Ad Valorem tax under monopoly. **[4M]**

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Q7) Differentiate between outlays, outputs, and outcomes in a budgeting process. Explain, why it is important to analyze the output-outcome budgeting for child budgeting in India. **[4M]**

Q8) What is log rolling in a voting process? Explain this concept with the help of a suitable example (e.g., Education and Health) and present it graphically. **[4M]**

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
SECOND SEMESTER 2022-2023

Comprehensive Examination: Part-C (Open Book)

Course No. : ECON F341	Max. Marks : 42
Course Title : Public Finance: Theory and Policy	Duration : 90 Minutes
Date : 08/05/2023	Weightage : 21%
Time : 09.00 AM-12.30 PM	

Instructions:

- a) Part C question paper carries a total 4 questions, All the questions are compulsory.
- b) Do not simply copy and paste the answers as per the reference book or other materials. Try to present it in your own words.

Q1- Define the concept of Fiscal Federalism and examine the historical evolution of fiscal federalism in India. Distinguish between vertical and horizontal fiscal imbalance. Critically explain the four major issues related to Indian Fiscal Federalism. [14M]

Q2- Suppose, Megha and Manish are a married couple with no children. Each earns ₹75,000 per year, and their combined household adjusted gross income is ₹150,000. Sweta and Samir also have ₹150,000 in combined household-adjusted gross income and no children. However, Samir earns all of the income; Sweta does not work. The income slab brackets by the government are presented below. Given this scenario, answer the following questions. [10M]

Tax slabs-35%, for incomes over ₹207,350 (₹414,700 for married couples filing jointly); 32% for incomes over ₹163,300 (₹326,600 for married couples filing jointly); 24% for incomes over ₹85,525 (₹171,050 for married couples filing jointly); 22% for incomes over ₹40,125 (₹80,250 for married couples filing jointly); 12% for incomes over ₹9,875 (₹19,750 for married couples filing jointly).

- a) Given these tax rates for married couples, if they jointly file the tax, compute how much income tax each couple owes. Assume that both take the standard deduction (suppose the standard deduction for married couples filing jointly is ₹ 24,800 & for individually it is ₹ 12,400).
- b) If the couples file the tax individually, how much it will differ as compared to the joint tax payment by each couple? Does either couple pay a “marriage tax?” Does either couple receive a “marriage benefit?”

Q3-A good is traded in a competitive market. The demand function is given by $X=75-5P$ and supply is perfectly elastic at the price $P=10$. [12M]

- a) A specific tax of value $t=2$ is introduced. Compute the tax revenue and determine the tax incidence.
- b) An ad valorem tax at a rate of $t= 0.2$ is introduced. Determine the tax incidence.
- c) How does the incidence of the specific tax and the ad valorem tax differ if supply is given by, $Y = 2.5P$?

Q4- The city of Indore is considering whether to build a new public swimming pool. This pool would have a capacity of 800 swimmers per day, and the proposed admission fee is ₹6 per swimmer per day. The estimated cost of the swimming pool, averaged over the life of the pool, is ₹4 per swimmer per day. The city authority of Indore has hired you to assess this project. Fortunately, the neighboring identical town of Ujjain already has a pool, and the town has randomly varied the price of that pool to find how price affects usage. The results from their study follow:

Swimming pool price per day	Number of swimmers per day
₹8	500
₹10	200
₹4	1,100
₹6	800
₹2	1,400

[6M]

- a) If the swimming pool is built as planned, what would be the net benefit per day from the swimming pool? What is the consumer surplus for swimmers?
- b) Given this information, is an 800-swimmer pool the optimally sized pool for Indore to build? Explain.

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