S5 Economics Practice Paper: opportunity cost and the production possibility curve, demand, supply and price elasticity, per-unit tax and subsidy, price ceilings and floors, GDP and GNP, unemployment and inflation, money and exchange rates, comparative advantage and tariffs (100 marks)

Level: S5 | Subject: Economics | 75 minutes | 100 marks | 24 questions | answer key

Section A: Basic Economic Concepts, Opportunity Cost and Factors of Production (18 marks)

Answer all questions and show your working, units and significant figures.

#	Question	Answer	Marks
1	Ms Chan gives up a full-time job paying $18,000 a month to take a one-year full-time course. Tuition is $60,000 a year and books $6,000. Assume she would work full-time if she did not study. (a) Find the salary income she gives up in a year. (b) Find the opportunity cost of the course for one year.	(a) Forgone salary = $18,000 x 12 = $216,000. (b) Opportunity cost = $216,000 + $60,000 + $6,000 = $282,000; the tuition and book money would also have been used for something else had she not studied, so it is part of the value given up.	4
2	An economy produces only X and Y. Points on its production possibility curve are (X, Y): (0, 120), (10, 110), (20, 90), (30, 60), (40, 20). (a) Find the opportunity cost of each unit of X in terms of Y when X rises from 0 to 10. (b) Find the same when X rises from 30 to 40. (c) Hence describe the shape of the curve and the law it implies.	(a) Y given up = 120 - 110 = 10 units, so the opportunity cost is 1.0 units of Y per unit of X. (b) Y given up = 60 - 20 = 40 units, so 40 / 10 = 4.0 units of Y per unit of X. (c) Producing each extra 10 units of X costs 10, 20, 30 and 40 units of Y, so opportunity cost rises and the curve is concave to the origin. This reflects the law of increasing marginal opportunity cost, because resources are not homogeneous and cannot be transferred between uses at constant cost.	4
3	(a) State the three basic economic problems every economy must solve. (b) In a market economy, by what mechanism are they mainly solved? (c) State the main difference between a planned and a market economy in the ownership of means of production.	(a) What to produce and how much; how to produce (which methods and combination of resources); for whom to produce (how output is distributed). (b) Mainly by the price mechanism: changes in demand and supply move prices, and a rising price attracts resources into an industry while a falling price drives them out. (c) In a planned economy the means of production are mostly state or collectively owned and allocated by government directives; in a market economy they are mostly privately owned and allocated through voluntary exchange.	3
4	Classify each statement as positive or normative and give a brief reason: (i) "The unemployment rate rose to 4.0% last quarter." (ii) "The government should raise the minimum wage to narrow the income gap." (iii) "A 10% rise in tobacco duty will reduce teenage smoking."	(i) Positive: the unemployment rate is measurable data, so the statement can be tested. (ii) Normative: it involves a value judgement about whether the minimum wage should be used to narrow the gap, which data cannot prove right or wrong. (iii) Positive: it is a testable prediction about cause and effect.	3

5	Classify each item as a factor of production and name its reward: (a) farmland (b) a lorry driver (c) a bank deposit (d) an entrepreneur who bears the risk of loss.	(a) Land, reward is rent. (b) Labour, reward is wages. (c) Capital, reward is interest. (d) Entrepreneurship, reward is profit, which may be negative as a loss.	4

Section B: Demand, Supply and Elasticity (17 marks)

Answer all questions and show your working, units and significant figures.

#	Question	Answer	Marks
6	The price of a good falls from $20 to $16 and quantity demanded rises from 100 to 130 units. (a) Find the price elasticity of demand by the initial-value method (take the absolute value). (b) State whether demand is elastic, unit elastic or inelastic. (c) Find total revenue before and after the price cut and explain the result in terms of elasticity.	(a) Percentage change in quantity = (130 - 100) / 100 = 30%; percentage change in price = (16 - 20) / 20 = -20%; elasticity = 30% / 20% = 1.5. (b) It is greater than 1, so demand is elastic. (c) Total revenue before = 20 x 100 = $2000; after = 16 x 130 = $2080, a rise of $80. With elastic demand price and total revenue move in opposite directions, so a price cut raises total revenue.	5
7	A consumer's monthly income rises from $20,000 to $22,000 and his quantity demanded of a good rises from 50 to 65 units. (a) Find the income elasticity of demand. (b) Classify the good. (c) If another good has an income elasticity of -0.5, how would you classify it?	(a) Quantity change = (65 - 50) / 50 = 30%; income change = (22,000 - 20,000) / 20,000 = 10%; income elasticity = 3.0. (b) It is positive and above 1, so the good is a luxury within normal goods. (c) A negative income elasticity means an inferior good, whose demand falls as income rises.	4
8	The price of good A rises by 10%; quantity demanded of good B rises by 25% and of good C falls by 5%. (a) Find the cross price elasticity between A and B and state their relationship. (b) Find the cross price elasticity between A and C and state their relationship. (c) What would a cross elasticity of 0 between A and B mean?	(a) Cross elasticity = +25% / +10% = +2.5; it is positive, so A and B are substitutes (consumers switch to B when A becomes dearer). (b) Cross elasticity = -5% / +10% = -0.5; it is negative, so A and C are complements used together. (c) A cross elasticity of 0 means the goods are independent and a change in the price of A does not affect demand for B.	4
9	In a market, demand is Qd = 120 - 2P and supply is Qs = 3P - 30 (P in dollars, Q in units). (a) Find the equilibrium price and quantity. (b) After the government imposes a per-unit tax of $5 on producers, find the new equilibrium price and quantity.	(a) Set Qd = Qs: 120 - 2P = 3P - 30, so 5P = 150, P = $30 and Q = 120 - 60 = 60 units. (b) After the tax supply becomes Qs = 3(P - 5) - 30 = 3P - 45; 3P - 45 = 120 - 2P gives 5P = 165, P = $33 and Q = 120 - 66 = 54 units (buyers pay $33 while sellers keep $28).	4

Section C: Price Controls, Per-unit Tax and Subsidy (17 marks)

Answer all questions and show your working, units and significant figures.

#	Question	Answer	Marks
10	Using Qd = 120 - 2P and Qs = 3P - 30: (a) if a price ceiling of $24 is set, find the shortage; (b) if a price floor of $36 is set, find the surplus; (c) give two non-price rationing methods used under a price ceiling.	(a) At P = 24, Qd = 120 - 48 = 72 and Qs = 72 - 30 = 42, so the shortage is 30 units. (b) At P = 36, Qd = 120 - 72 = 48 and Qs = 108 - 30 = 78, so the surplus is 30 units. (c) Queuing on a first-come-first-served basis, balloting, ration coupons, or allocation by sellers according to personal links or preference.	5
11	Following Section B: the original equilibrium is P = $30, Q = 60. A per-	(a) Consumers bear 33 - 30 = $3 per unit; producers bear 5 - 3 = $2 per unit. (b) Tax revenue = 5 x 54 =	4

	unit tax of $5 raises the price to $33 and cuts quantity to 54. (a) Find the tax borne per unit by consumers and by producers. (b) Find the government tax revenue. (c) Find the deadweight loss, assuming straight-line demand and supply curves.	$270. (c) Deadweight loss = 1/2 x 5 x (60 - 54) = $15.	
12	In a market Qd = 120 - 2P and Qs = 2P - 20. The government pays producers a subsidy of $6 per unit. (a) Find the equilibrium price and quantity before the subsidy. (b) Find the price paid by consumers and the quantity traded after the subsidy. (c) Find the total subsidy payment.	(a) 120 - 2P = 2P - 20, so 4P = 140, P = $35 and Q = 50 units. (b) With the subsidy Qs = 2(P + 6) - 20 = 2P - 8; 2P - 8 = 120 - 2P gives 4P = 128, P = $32 and Q = 56 units, while producers receive 32 + 6 = $38. (c) Total subsidy = 6 x 56 = $336.	4
13	A price ceiling creates a shortage of 30 units in a market. (a) Explain why a price ceiling causes misallocation of resources. (b) State two non-price competition costs that may arise. (c) If the government instead gave consumers a subsidy of $5 per unit, would the shortage widen or narrow? Explain briefly.	(a) The price is held below equilibrium, so quantity supplied is less than quantity demanded; some consumers willing to pay more cannot buy, productive capacity is underused, and resources are misallocated with waste. (b) The time cost of queuing; black market trading at prices above the ceiling; queue-jumping, bribery or sellers favouring acquaintances. (c) The shortage would widen, because a subsidy to consumers shifts the demand curve right, so quantity demanded rises further against unchanged supply.	4

Section D: National Income, Unemployment and Inflation (16 marks)

Answer all questions and show your working, units and significant figures.

#	Question	Answer	Marks
14	For an economy (in billions): private consumption 600, gross domestic fixed capital formation 180, government consumption expenditure 150, exports of goods and services 300, imports 280, and net inflow of factor income 20 . (a) Find GDP by the expenditure approach. (b) Find GNP. (c) Why is the resale of a used car excluded from that year's GDP?	(a) GDP = C + I + G + X - M = 600 + 180 + 150 + 300 - 280 = $950 billion. (b) GNP = GDP + net factor income from abroad = 950 + 20 = $970 billion. (c) The car was already counted in GDP when first sold; resale is only a transfer of an existing asset with no new production, so counting it again would be double counting.	4
15	In an economy the population aged 15 and over is 5,000,000, employment is 3,600,000 and unemployment is 150,000. (a) Find the labour force. (b) Find the unemployment rate. (c) Find the labour force participation rate.	(a) Labour force = 3,600,000 + 150,000 = 3750000. (b) Unemployment rate = 150,000 / 3,750,000 x 100% = 4.0%. (c) Participation rate = 3,750,000 / 5,000,000 x 100% = 75.0%.	4
16	The consumer price index rises from 120 to 126. A worker's nominal income rises from $24,000 to $25,200. (a) Find the inflation rate. (b) Find his real income in both periods at base-period prices. (c) How has his real income changed?	(a) Inflation = (126 - 120) / 120 x 100% = 5.0%. (b) Real income before = 24,000 / 120 x 100 = $20000; after = 25,200 / 126 x 100 = $20000. (c) Real income is unchanged, because the 5% nominal rise exactly matches inflation.	4
17	Nominal GDP rises from $1,000 to $1,080 while the GDP deflator rises from 100 to 105. (a) Find real GDP for the second year at base-period prices. (b) Find the growth rate of real GDP. (c) Why should real rather than nominal GDP be used to compare output across years?	(a) Real GDP = 1,080 / 105 x 100 = 1028.6 on a base of 1,000. (b) Growth = (1028.6 - 1,000) / 1,000 x 100% = 2.9%. (c) Nominal GDP is valued at current prices, so inflation inflates it; real GDP divides by the deflator to	4

		remove price changes and so measures changes in actual output only.	

Section E: Money, Banking and Exchange Rates (16 marks)

Answer all questions and show your working, units and significant figures.

#	Question	Answer	Marks
18	A person deposits $10,000 cash with a bank. The required reserve ratio is 20% and banks hold no excess reserves. (a) Find the deposit multiplier. (b) Find the maximum total deposits the banking system can create. (c) Find the increase in money supply.	(a) Deposit multiplier = 1 / 0.2 = 5. (b) Maximum total deposits = 10,000 x 5 = $50000. (c) New money = 50,000 - 10,000 = $40000, created as loans are redeposited and lent again.	4
19	Hong Kong operates a linked exchange rate system with US$1 = HK$7.80. (a) What is a HK$390 item worth in US dollars? (b) What is a US$500 phone worth in Hong Kong dollars? (c) State one benefit of the linked exchange rate system.	(a) 390 / 7.80 = US$50. (b) 500 x 7.80 = HK$3900. (c) A stable rate against the US dollar removes exchange rate risk and hedging costs in trade and investment, which suits a small open economy like Hong Kong.	4
20	The US dollar rises from 7.80 to 7.85 against the Hong Kong dollar. (a) Find the percentage depreciation of the Hong Kong dollar against the US dollar. (b) By how many Hong Kong dollars does the local price of a US$500 phone rise? (c) What effect does the depreciation have on the competitiveness of local exports?	(a) Depreciation = (7.85 - 7.80) / 7.80 x 100% = 0.64%. (b) From 3,900 to 3,925, a rise of $25. (c) A weaker Hong Kong dollar raises export earnings in local currency (the US dollar price paid by foreign buyers falls), so local exports become more price competitive and export volume tends to rise.	4
21	(a) State three functions of money. (b) A borrower takes a loan of $200,000; the annual interest rate rises from 4% to 5%. Find the increase in annual interest.	(a) Medium of exchange, unit of account (measure of value) and store of value (standard for deferred payment). (b) Interest rises from 200,000 x 4% = $8000 to 200,000 x 5% = $10000, an increase of $2000 a year.	4

Section F: International Trade, Comparative Advantage and Tariffs (16 marks)

Answer all questions and show your working, units and significant figures.

#	Question	Answer	Marks
22	With the same resources, Country A can produce 4 machines or 8 units of cloth per labour hour, while Country B can produce 1 machine or 6 units of cloth. (a) Find the opportunity cost of one machine in each country, in units of cloth. (b) In which good does each country have a comparative advantage? (c) State the range of mutually beneficial terms of trade. (d) If one machine trades for 4 units of cloth, how much extra cloth does each country gain by specialising and trading?	(a) A: 8 / 4 = 2 units of cloth; B: 6 / 1 = 6 units of cloth. (b) A has the lower opportunity cost of a machine (2 < 6), so it has a comparative advantage in machines; B gives up only 0.17 of a machine per unit of cloth against 0.50 in A, so B has a comparative advantage in cloth. (c) One machine should trade for between 2 and 6 units of cloth. (d) A gets 4 units of cloth for a machine it could make for 2, gaining 2 units; B gets a machine for 4 units of cloth instead of the 6 it would cost to make one, saving 2 units.	6
23	Using the production data above (A: 4 machines or 8 units of cloth; B: 1 machine or 6 units of cloth): (a) which country has an	(a) Country A has an absolute advantage in both goods (4 > 1 machines and 8 > 6 units of cloth). (b) Yes. Absolute advantage is not	5

	absolute advantage in both goods? (b) Should that country still trade with the other? Explain. (c) If both countries had exactly the same opportunity cost of producing machines, would trade still take place?	comparative advantage: if A specialises in machines and B in cloth, total output rises, and each country obtains the other good at a lower opportunity cost than by making it at home. (c) No, in this two-good model: identical opportunity costs mean no comparative advantage, so specialisation cannot raise total output and there is no gain from trade.	
24	The world price of a good is US$10 per unit. Local demand is Qd = 120 - 2P and local supply Qs = 3P - 30 (P in US dollars). (a) Under free trade, find the local price, local output and imports. (b) After a per-unit tariff of US$4, find the local price, local output and imports. (c) Find the tariff revenue.	(a) Local price = world price US$10; Qd = 120 - 20 = 100 and Qs = 30 - 30 = 0, so imports are 100 units. (b) Local price = 10 + 4 = US$14; Qd = 120 - 28 = 92 and Qs = 42 - 30 = 12, so imports are 80 units. (c) Tariff revenue = 4 x 80 = US$320.	5