BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

OCT 2024

DEPARTMENT OF ECONOMICS

BACHELOR OF SCIENCE HONOURS DEGREE IN ECONOMICS

ADVANCED ECONOMIC THEORY I (EC 401)

EXAMINATION **DURATION: 3 HOURS**

INSTRUCTIONS TO CANDIDATES

1. **Answer four (4) questions**
2. **The paper carries six questions**
3. **All questions carry equal marks of 25 each**
4. **The use of cellphones is not allowed in the exam**

Question 1

(a) Using real world examples compare and contrast the Esping-Andersen's three welfare state of models for social policy to the Scandinavian model. **(9 marks)**

(b) Trust plays a major role in explaining the welfare-state-inequality nexus in each of the welfare states discussed in (a)". Discuss. **(8 marks)**

(c) Welfare state models in (a) are not applicable in African economies in general and Zimbabwe in particular". Discuss the validity of this argument. **(8 marks)**

Question 2

(a) A miner produces platinum, chrome and nickel whose units are 0.5, 1.5 and 2 million tons respectively. The demand for platinum and nickel are:

$D1 = \frac{2}{5}\frac{P_1}{P_2} + \frac{1}{5}\frac{P_3}{P_2} + 2.2$ $D2 = \frac{1}{5}\frac{P_1}{P_2} - \frac{2}{5}\frac{P_3}{P_2} + 3.6$ respectively. Find the relative prices of the three minerals. **(6 marks)**

(b) Zimbabwe's production function for consumer goods (c) and capital goods (k) are given by the PPC $P(c,k) = \frac{1}{2}c^3 + k^2 = 343.75$ and the Zimbabweans preferences are represented by the Cobb-Douglas utility function $U(c;k) = c^{\frac{1}{4}}k^{\frac{3}{4}}$

i) Find the equilibrium outputs for capital and consumer goods for the Zimbabwean economy and present it on a well labelled diagram **(6 marks)**

ii) What are the relative prices of these two goods? **(3 marks)**

(c) Zimbabwe's production function for beef (b) in thousand kilograms and wheat (w) in million tonnes are given by the PPC $C(b;w) = \frac{4}{5}b^3 + \frac{8}{5}w^2 = 460.8$ and the Zimbabwes prefences are represented by the Cobb-Douglas utility function $U(b;w) = b^{\frac{1}{2}} w^{\frac{1}{3}}$

i) Find the equilibrium amount of beef and tonnes of wheat for this economy **(7 marks)**

ii) What are the relative prices for these goods? **(3 marks)**

Question 3

"Understanding welfare economics is a prerequisite and backbone of sound social policy formulation especially towards poverty alleviation" (Baumol, 1952)

(a) Based on assumptions given by various theories in explaining welfare economics. State, explain and demonstrate using appropriate diagrams all the three Fundamental Theorems of Welfare Economics. **(10 marks)**

(b) Using case studies of African countries of your choice,

i) Discuss the relevance and implications of each of the three Fundamental welfare Theorems for social policies. **(7 marks)**

ii) Examine the applicability of these theorems in the context of named developing, emerging and advanced economies **(8 marks)**

Question 4

To discourage people from breaking the traffic laws, society can increase the probability that someone exceeding the speed limit will be caught and punished, or it can increase the size of the fine for speeding.

(a) Explain why either method can be used to discourage speeding. **[5 marks]**

(b) Which approach is a government likely to prefer, and why? **[10 marks]**

(c) Suppose that most people will not speed if the expected fine is at least $500. The actual fine for speeding is $800. How high must the probability of being caught and convicted be to discourage speeding? **[10 marks]**

Question 5

(a) Examine the importance of Akerloff's (1970) market for lemons theory in today's life **(15 marks).**

(b) Analyze the remedies that can be adopted to solve problems encountered where there is asymmetric information **(10 marks).**

Question 6

Jill possesses $160,000 worth of valuables. She faces a 0.2 probability of a burglary, where she would lose jewellery worth $70,000. She can buy an insurance policy for $15,000 that would fully reimburse the $70,000. Her utility function is: $U(X) = 4X0.5$

(a) What is the actuarially fair price for the insurance policy? **(5 marks)**

(b) With the aid of calculus, advise Jill whether she should buy the actuarially fair insurance policy or not. **(10 marks).**

(c) What is the most that she is willing to pay for an insurance policy that fully covers it against loss? **(10 marks).**

END OF PAPER