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AED ECON. 597.01
INT. STD. 597.01
Winter, 2000
First Midterm Exam

I. True/False (30 points). Answer in the answer sheet attached. True (=A); False (=B).

- _____ 1. With a sufficiently detailed and complex model and with good historical data, governments in developing countries should be able to correctly forecast their future food requirements and to plan increases in domestic food production to meet all their future demand.
- _____ 2. According to H. Kahn and other optimistic forecasters, the rate of growth of the world's population will gradually decline in the future, as increasing income-generating opportunities in developing countries will induce fertility rates to approach population replacement levels.
- _____ 3. The future evolution of the world's population numbers, the access of this population to sufficient food supplies, and the impact of food production on the conservation of environmental resources will be mostly determined by human behavior guided by market signals, policies, and other forms of incentives.
- _____ 4. In terms of cereal equivalents, a typical diet in a rich, industrialized nation is more demanding on natural resources than a typical diet in a poor, developing country, despite the fact that the income elasticity of the demand for food is higher in the poor than in the rich economy.
- _____ 5. Most of the fertile lands available for food production are in the tropics (between the tropics of Capricorn and Cancer). The largest expected increases in the world's population will also occur in those regions and, as a result, international trade will play a diminishing role in addressing the food problem in the first half of the 21st century.
- _____ 6. In the immediate future, most of the increase in world population will occur in developing countries, where it will be due to changes in the natural demographic processes (fertility, momentum and mortality), while most of the slow population increases in industrialized countries will be due to migration from other countries.

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- _____ 7. Crude birth rates increase during the demographic transition because parents care more about the welfare of their children when their incomes rise.
- _____ 8. In his article in the Columbus Dispatch, Hanley cites an Argentinean ecologist (Galopin) who has a pessimist view about the future because he believes that the binding limits to solving resource problems are institutional and sociopolitical, not physical, and that these limits will lead to world conflicts.
- _____ 9. Despite their low country-average population density rates, the most significant environmental problems for some of the large developing countries will result from agglomeration of their increasing population in a few megapolis urban centers.
- _____ 10. Incorrect absolute and relative prices in the former command economies of Eastern Europe and the Soviet Union meant that the consumption of food, in cereal equivalents, first decreased during the transition toward a market economy and will now only gradually grow with income, before consumption reaches the earlier levels.
- _____ 11. Just about the time when Thomas Malthus was making his pessimistic predictions about future food availabilities in Europe, technological change in agriculture resulted in higher per capita income and better nutrition, which in turn made possible an even faster rate of population growth than before, coupled with increased welfare.
- _____ 12. Ecologists have a clear consensus that an intensification strategy to increase the world's food supply will have more serious negative environmental consequences than an extensification strategy for the same purpose.
- _____ 13. While the largest future absolute increases in population will occur in Asia, the most rapid rate of population growth will be observed in Africa.
- _____ 14. Compared to Asia, low per capita income and slow economic growth in Africa are explained by weak legal frameworks, poorly-defined property rights, arbitrary policies, and government agencies with a limited capacity to promote development.
- _____ 15. Given the region's comparative advantages in food production, in the past decades African governments adopted strategies to promote their agricultural sector and ignored the trend toward import-substitution industrialization followed in the rest of the developing world.

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II. MULTIPLE CHOICE (30 points). Record the correct answers in the attached answer sheet. Read all options before answering.

16. A country experiencing population momentum:
- a. Is experiencing zero population growth.
 - b. Has not yet begun to reduce its fertility rates.
 - c. Is experiencing large increases in population due to increasing fertility rates.
 - d. Continues to experience rapid population growth even though fertility rates are declining.
 - e. Both (b) and (c) above are true.
17. Important rules about optimum policymaking are:
- a. To choose a policy instrument that directly matches the nature and extent of the problem to be resolved.
 - b. Not to pursue too many diverse objectives with only one policy instrument.
 - c. To choose a policy instrument that pleases everyone, so that there are only winners and no losers from the policy choice.
 - d. Both (a) and (b) are correct.
 - e. All of (a), (b) and (c) above are correct.
18. Governments in developing countries find that food policy is a difficult task because:
- a. To improve the nutrition of the population, consumers must have access to sufficiently affordable food (low price).
 - b. To encourage profitable domestic production of food, producer prices must be sufficiently attractive (high price).
 - c. To promote the socially most efficient allocation of resources in the country, the domestic price should be equal to the international border price of the good.
 - d. Subsidies for either consumers or producers cannot be sustained because of pressures on the government budget leading to fiscal crisis and inflation.
 - e. All options except (c) are true.

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19. The stylized facts about the world's population growth include:
- A fairly low and almost constant rate of population growth for most of history, followed by an exponential acceleration during the two to three centuries prior to the 1970s.
 - A shift in the locus of rapid population growth from the industrialized nations to the developing world some time in the 20th century (1930s).
 - The gradual shift from an exponential to a logistic pattern of population growth towards the end of the 20th century.
 - Only (b) and (c) are true.
 - All of (a), (b) and (c) above are true.
20. The population in developing countries:
- Is growing rapidly and is getting younger, which will create a future problem of population momentum.
 - Is growing rapidly because of increasing fertility rates combined with higher mortality rates.
 - Shows a distribution (profile) of population according to gender (sex) and age classes that looks like a pyramid with a broad base.
 - Only (a) and (c) are true.
 - All of (a), (b) and (c) above are true.
21. The main conclusions of the Meadows study for the Club of Rome were that:
- without major changes in human behavior, the world's economic system was condemned to collapse within a few decades.
 - the collapse of the world's economy would be sudden rather than gradual, due to an inevitable depletion of non-renewable resources.
 - solving each problem one at a time (piecemeal approach) would be sufficient to prevent the collapse.
 - Only (a) and (b) are true.
 - All of (a), (b) and (c) above are true.

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22. Which of the following magnitudes is not needed to calculate the annual rate of growth of a country's demand for food:
- The annual rate of population growth.
 - The income elasticity of the demand for food.
 - The annual rate of growth of average yields on land.
 - The annual rate of growth of income per capita.
 - No, all the indicators above are needed for the calculation.
23. In country YOUNG, population is growing at a rate of 3.8 percent per year and the income elasticity of the demand for food is still 0.85. In turn, arable land is expanding only 2.0 percent per year, and there is no technological change in agriculture. In the next decades, this country will:
- Develop an excess supply of food and will become a net exporter of food.
 - Maintain a zero balance on its food trade account.
 - Develop an excess supply of food and will become a net importer of food.
 - Develop an excess demand for food and will become a net importer of food.
 - Develop an excess demand for food and will become a net exporter of food.
24. The history of Humankind reflects that:
- After the industrial revolution, the income elasticity of the demand for children became negative, in contrast with the experience along all earlier history.
 - Before the industrial revolution, increases in income resulted mostly in increases in income per capita rather than in population.
 - High mortality rates accompanied low fertility rates during the period prior to the demographic transition.
 - Both (a) and (b) are true.
 - None of the answers above are correct.

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25. As per capita income levels increase, households:
- a. spend higher and higher proportions of their income on food.
 - b. devote lower and lower proportions of their food budgets to livestock products.
 - c. choose diets that are more and more saving of agricultural resources.
 - g. devote their higher incomes to feeding larger and larger numbers of children.
 - h. None of the answers above are correct.
26. Some of the features of Asia that typically influence population growth, economic development, and food supplies in that region are:
- a. The social discipline and work ethic associated with strong, long-standing peasant subcultures.
 - b. The uncomplicated cultural mosaic, with almost no ethnic strife.
 - c. The failure of the green revolution to expand in Asia.
 - d. Unstable macroeconomic policies and poorly-managed governments.
 - e. All of the above are true.
27. Among major determinants of the world's food problem in the first half of the 21st Century are:
- a. The fact that the world's demand for food will increase due to rapid economic growth in some of the world's most populated countries (China, India, Indonesia).
 - b. The fact that the world's supply of food may not increase sufficiently because of the challenges of reorganization of the former collective farms in Eastern Europe and the former Soviet Union.
 - c. The difficulties and obstacles encountered in triggering or transferring a green revolution to Africa.
 - d. The fact that the world's demand for agricultural resources to produce food will decline because the world's population will tend to demand less livestock products.
 - e. All of the above except (d) are correct.

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28. The pessimistic predictions of Thomas Malthus were based on:
- The assumption that the future growth of population would follow a logistic trend.
 - The assumption that with fixed amounts of land, there would be diminishing returns to additional labor inputs into agriculture.
 - The assumption that rapid technological change would overcome the restrictions resulting from diminishing returns.
 - Both (a) and (c) are true.
 - All (a), (b) and (c) are true.
29. Free trade, as a means of taking advantage of a country's opportunity to trade, will be politically supported:
- By domestic consumers of food in a country that possesses comparative advantages in the production of food.
 - By domestic producers of food in a country that does not possess a comparative advantage in the production of food.
 - By domestic consumers of food in a country that does not possess a comparative advantage in the production of food.
 - Both (a) and (b) are correct.
 - None of the above are correct.
30. At the Meetings of the World Trade Organization in Seattle, given their own interests, one would have expected to see protesters against freer trade and the elimination of subsidies and other barriers to trade in industrialized nations, from the following social groups:
- Young female workers (16-21 years old) from developing countries.
 - American farmers.
 - Well-educated American workers in the aeronautic, computer, and internet businesses.
 - Innovating young entrepreneurs from Eastern Europe.
 - None of the above.

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III. Analysis (40 points)

30. Population analysis. (20 points in three parts).

The purpose of this exercise is to obtain a detailed description of the stages in the history of a country prior to, during, and after the demographic transition as well as a discussion of the determinants of events in each stage. To facilitate the explanation, each one of these stages is examined separately (one per page).

- A1. Draw a graph of the demographic situation prior to the demographic transition (stage one only). Label the axis and each curve in the graph and explain the behavior of the key demographic variables (indicators).
- A.2 Explain what circumstances and features of the country account for and explain the behavior of the key demographic variables.

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- B.1 Draw a graph of the demographic transition itself (second stage only) and describe the behavior of the key demographic variables.
- B.2 Explain what circumstances trigger the first part of the transition. What are some determinants of the length of this part.
- B.3 Explain what changes and why during the second part of the transition. What are some determinants of the length of this part.

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- C.1 Draw a graph of the situation of the country after the demographic transition has occurred and describe the behavior of the key demographic variables. What explains their behavior.
- C.2 Examine what happens to the demand for food when a country has reached the stage after the demographic transition.

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32. Food demand, supply and trade. (20 points in three parts).

- A.1 Consider the world market for food at time $t = 0$.
Assume that a person is so frightened, that she will accept only pessimistic forecasts about the future evolution of this market. Examine reasons and circumstances that would support such a pessimistic perspective.
- A.2 Under this pessimistic perspective, what will be the evolution of the world market (price, amounts of food available)?
Draw a graph to represent the changes in the market after the pessimistic forecasts have become reality and explain the results.

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- B.1 Consider the world market for food at time $t = 0$ again.

Assume that a person is so cheerful, that he will accept only optimistic forecasts about the future evolution of this market. Examine reasons and circumstances that would support such an optimistic perspective.

- B.2 Under this optimistic perspective, what will be the evolution of the world market (price, amounts of food available)?
Draw a graph to represent the changes in the market after the optimistic forecasts have become reality and explain the results.

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- C.1 Consider a low-income (poor), land-scarce developing country during the first part of its demographic transition. Examine the consequences in this country of taking advantage of its

opportunity to trade and moving away from autarky. Draw a graph to represent the situation and identify the volumes of domestic production, trade, and domestic consumption.

- C.2 Once trade is taking place, examine the consequences for this country of either a pessimistic scenario or an optimistic scenario at the world level. Does what happens in the world at large matter for this country? Why? Which scenario is more favorable for this country? Draw a graph to represent the consequences of each scenario.