

Week 4

AP Human Geography

Homework bundle for this week

本周作业合集

exercises.lol

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2. Population and Migration Patterns and Processes Starter Quiz · 课前小测

AP Human Geography

Name: _____ Score: _____

1. Physiological density divides the population by...
 - ☐ total land area
 - ☐ arable (farmable) land
 - ☐ number of cities
 - ☐ number of farmers
2. A typical problem of a very **densely** populated area is...
 - ☐ too few taxpayers for services
 - ☐ strain on housing, water, and services
 - ☐ hospitals 100 km apart
 - ☐ no workers at all
3. A population pyramid with a very wide base shows...
 - ☐ an ageing, shrinking population
 - ☐ high birth rates and rapid growth
 - ☐ no children at all
 - ☐ equal numbers in every age
4. CBR = 28 and CDR = 8 per 1,000. What is the rate of natural increase, as a percent?
_____ %
5. In Stage 2, the population booms mainly because...
 - ☐ the birth rate suddenly rises
 - ☐ the death rate falls while births stay high
 - ☐ migration increases
 - ☐ the death rate rises
6. According to Malthus, population grows _____ while food grows _____.
 - ☐ linearly ... exponentially
 - ☐ exponentially ... linearly
 - ☐ not at all ... rapidly
 - ☐ randomly ... steadily

7. Most people live in deserts, high mountains, and polar regions.
- ☐ True ☐ False
8. Sparsely populated areas can struggle to fund services because few taxpayers cover a wide area.
- ☐ True ☐ False
9. The dependency ratio counts the young and the old as dependents.
- ☐ True ☐ False
10. If a country's RNI is 2%, roughly how many years until its population doubles (rule of 70)?
- _____ years

AP Human Geography

1. **arable (farmable) land**

Physiological density = people ÷ farmable land, so it shows pressure on food supply.

2. **strain on housing, water, and services**

Crowding strains housing, water, jobs, and services.

3. **high birth rates and rapid growth**

A wide base = many young people = high birth rate = rapid growth.

4. **2.0 %**

$RNI = (28 - 8) \div 10 = 2.0\%$.

5. **the death rate falls while births stay high**

Falling deaths + still-high births open a wide gap → the boom.

6. **exponentially ... linearly**

Population **exponential** (1,2,4,8), food **linear** (1,2,3,4) — so population outruns food.

7. **False**

People cluster in mid-latitude, low-lying, well-watered land; harsh areas repel settlement.

8. **True**

Low density spreads few taxpayers thinly, making roads, schools, and hospitals costly.

9. **True**

Dependents = under 15 and over 64; the working-age support them.

10. **35 years**

Doubling time $\approx 70 \div 2 = 35$ years.

2.1 Population Distribution

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS density 人口密度 • physiological 生理密度 • agricultural density 农业密度 • arithmetic 算术密度
• population distribution 人口分布

Objective

Build the skills to answer exam questions on **population distribution** 人口分布 and **density** 人口密度.

You must be able to:

- explain the physical factors that attract people (climate, water, flat land, good soil)
- explain the human factors that attract people (jobs, transport, cities)
- calculate and compare **arithmetic** 算术密度, **physiological** 生理密度, and **agricultural density** 农业密度
- describe where the world's people are concentrated

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Why people cluster

People concentrate where the **physical** environment is welcoming — mild climate, fresh water, flat land, fertile soil — and where **human** factors like jobs and transport exist. Deserts, ice, and high mountains stay empty.

■ Three density measures

Arithmetic density = total people ÷ total land. **Physiological density** = people ÷ *farmable* land. **Agricultural density** = farmers ÷ farmable land.

■ Reading the measures

A high **physiological** density means much pressure on the farmland that exists. A low **agricultural** density suggests efficient, mechanised farming (few farmers feed many).

2 Practice

2.1 State two physical factors that attract dense human settlement. [2]

2.2 Define physiological density. [2]

2.3 A country has 20 million people, 200,000 km² of land, of which 50,000 km² is farmable.

(a) Calculate its arithmetic density. [1]

(b) Calculate its physiological density. [1]

3 Exam-style questions

3.1 The number of people per unit of arable land is the [1]

- **A** arithmetic density
- **B** physiological density
- **C** agricultural density
- **D** population pyramid

3.2 Most of the world's population is concentrated in [1]

- **A** high mountains and deserts
- **B** midlatitude coasts and river valleys
- **C** polar regions
- **D** tropical rainforests only

3.3 Country X has a low agricultural density.

(a) State what agricultural density measures. [1]

(b) Explain what a low value suggests about its farming. [1]

Solutions

2.1 any two of: mild/temperate climate, fresh water, flat land, fertile soil, coastal access.

2.2 the number of people per unit of arable/farmable land.

2.3 (a) $20,000,000 \div 200,000 = 100$ people/km². (b) $20,000,000 \div 50,000 = 400$ people/km² of arable land.

3.1 B. people per arable land = physiological density.

3.2 B. people cluster on temperate coasts and fertile river valleys.

3.3 (a) the number of farmers per unit of farmable land. (b) few farmers work the land, suggesting efficient/mechanised, developed farming.

2.2 Consequences of Population Distribution

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS carrying capacity 环境承载力 • arithmetic density 算术密度 • population distribution 人口分布
• dependency ratio 抚养比 • migration 迁移

Objective

Build the skills to answer exam questions on the consequences of **population distribution** 人口分布 and **carrying capacity** 环境承载力.

You must be able to:

- define **carrying capacity** 环境承载力
- explain economic effects of dense or sparse population
- explain political effects (representation, services)
- explain social and environmental effects of clustering

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Carrying capacity

Carrying capacity is the number of people an area can support with its resources. Exceeding it strains water, food, and the environment.

■ Economic and political effects

Dense areas concentrate labour, markets, and services but strain housing and transport. Distribution also shapes **political power** — where people live decides representation and where governments invest.

■ Social and environmental effects

Clustering raises pressure on land, water, and air, and can cause crowding — but also supports services (schools, hospitals) that need a large local population.

2 Practice

2.1 Define carrying capacity. [2]

2.2 State one economic advantage and one disadvantage of a densely populated area. [2]

2.3 A remote region has a very sparse population.

(a) State one difficulty of providing services there. [1]

(b) Explain why this region may have little political influence. [1]

3 Exam-style questions

3.1 If a region's population exceeds what its resources can sustain, it has exceeded its [1]

- **A** arithmetic density
 - **B** carrying capacity
 - **C** dependency ratio
 - **D** sex ratio
-

3.2 A benefit of a concentrated population for public services is that [1]

- **A** services are cheaper to provide per person
 - **B** the environment is always protected
 - **C** carrying capacity rises automatically
 - **D** migration stops
-

3.3 A crowded coastal city keeps growing.

(a) State one environmental consequence of this concentration. [1]

(b) Explain one reason people still move there despite crowding. [1]

Solutions

2.1 the maximum population an area's resources/environment can support sustainably.

2.2 advantage: large labour force/market, services viable; disadvantage: strain on housing/transport/resources.

2.3 (a) services (schools, hospitals) are costly per person / far apart. (b) few people means fewer representatives/votes, so less political weight.

3.1 B. the sustainable maximum is the carrying capacity.

3.2 A. concentration makes services viable at lower cost per person.

3.3 (a) pressure on water/air/land, pollution, loss of green space. (b) jobs, services, and opportunities outweigh the crowding for migrants.

2.3 Population Composition

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS population pyramid 人口金字塔 • dependency ratio 抚养比 • sex ratio 性别比 • population composition 人口构成

- arithmetic density 算术密度

Objective

Build the skills to answer exam questions on **population composition** 人口构成 and **population pyramids** 人口金字塔.

You must be able to:

- read a **population pyramid** 人口金字塔 (age and sex structure)
- define the **dependency ratio** 抚养比 and **sex ratio** 性别比
- link a pyramid's shape to a country's development stage
- explain what a wide base or narrow base means

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Reading a population pyramid

A **population pyramid** shows the share of each age group by sex. A **wide base** = many children (high fertility); a **narrow base** = low fertility; bulges show large cohorts.

■ Dependency and sex ratios

Dependency ratio compares dependents (under 15 and over 64) to the working-age population. **Sex ratio** is the number of males per 100 females.

■ Shape and development

A broad-based pyramid suggests a less developed, fast-growing population; a column/urn shape suggests a developed, aging one.

2 Practice

2.1 State what a wide base on a population pyramid indicates. [2]

2.2 Define the dependency ratio. [2]

2.3 A pyramid is narrow at the base and wide in the older groups.

(a) Describe this country's fertility. [1]

(b) State one challenge this age structure creates. [1]

3 Exam-style questions

3.1 A country with a broad-based population pyramid most likely has [1]

- **A** low fertility and an aging population
- **B** high fertility and rapid growth
- **C** equal numbers in every age group
- **D** more males than females at all ages

3.2 The number of males per 100 females in a population is the [1]

- **A** dependency ratio
- **B** sex ratio
- **C** arithmetic density
- **D** rate of natural increase

3.3 A country has a high youth dependency ratio.

(a) State which group makes the ratio high. [1]

(b) Explain one demand this places on the government. [1]

Solutions

2.1 many young children; high birth rate / fast-growing population.

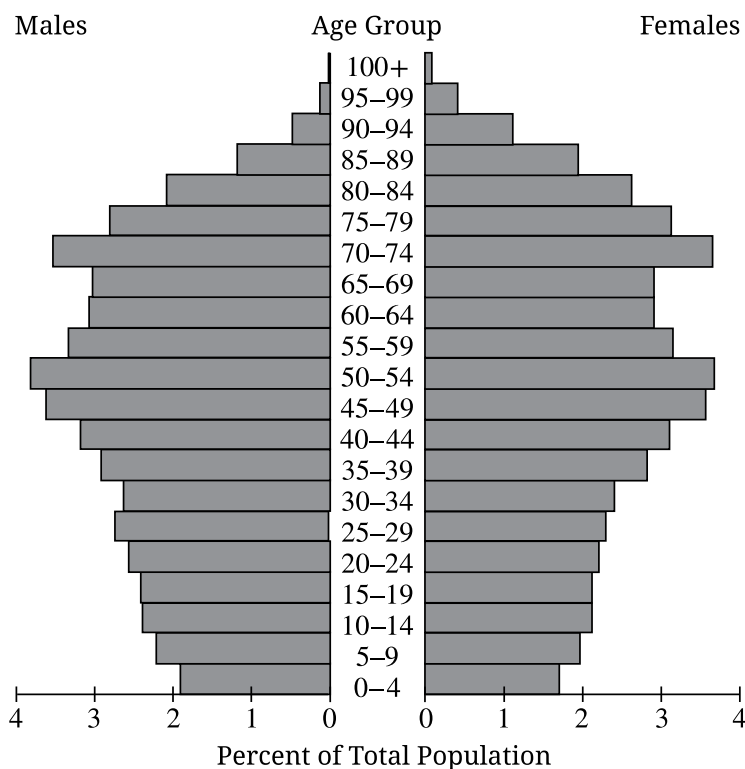
2.2 the ratio of dependents (under 15 and over 64) to the working-age (15-64) population.

2.3 (a) low fertility / few children. (b) a rising elderly dependency burden — pensions, healthcare, shrinking workforce.

3.1 B. a wide base = high fertility and rapid growth.

3.2 B. males per 100 females is the sex ratio.

3.3 (a) the large number of children (under 15). (b) heavy spending on schools/child health and future job creation.

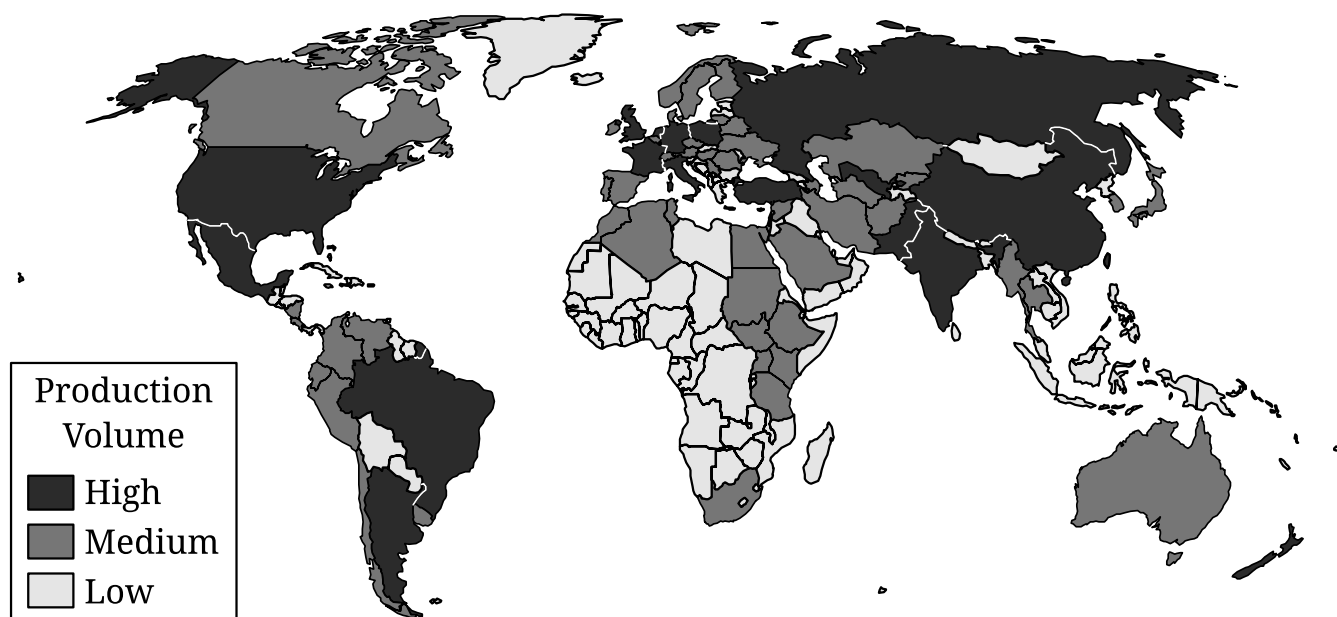
Japan Population Pyramid, 2021

Source: United States Census Bureau International Database

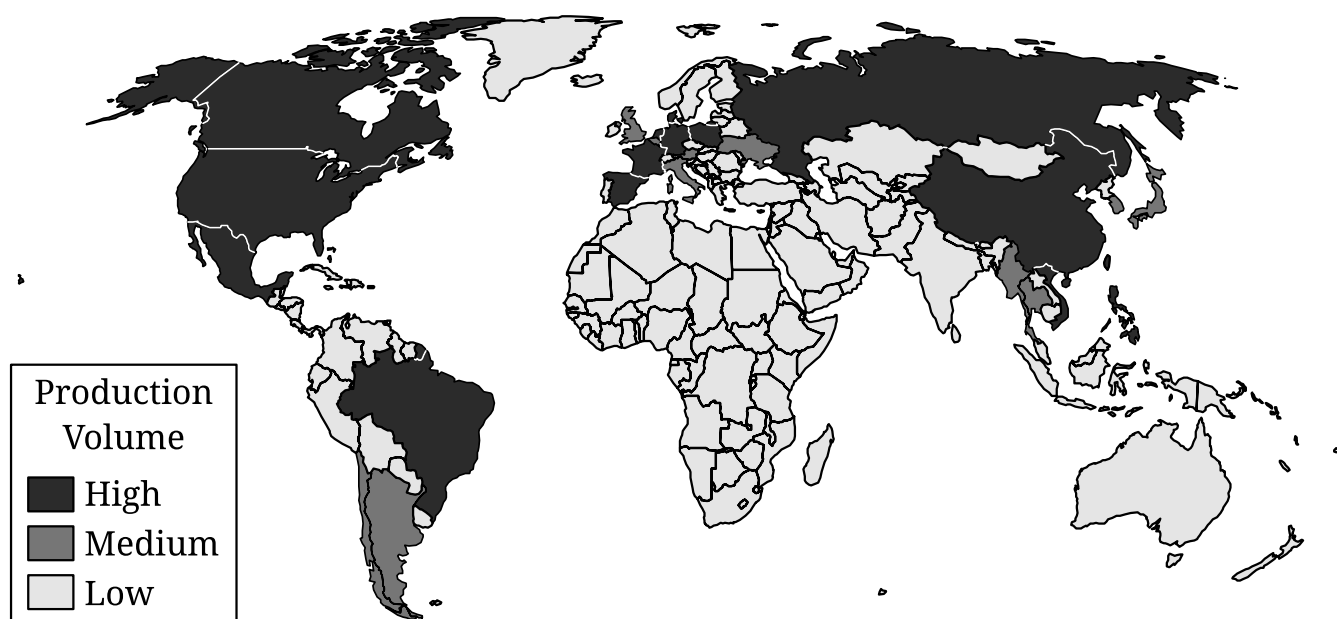
2. A population pyramid shows changes in population over time. A population pyramid breaks down the population by male and female and divides the population into five-year age groupings called cohorts.

Respond to parts A, B, C, D, E, F, and G.

- A. Identify the recent trend in fertility shown in the population pyramid.
- B. Based on the data shown in the population pyramid, describe the ratio of males to females in the Japanese population age 80 and above.
- C. Describe one process that drives urbanization.
- D. Describe one factor that may lead to a decrease in total population within a more developed country.
- E. Explain how a country's population pyramid can be used to predict the future needs of the population.
- F. Explain why the population pyramid provides limited information about immigration to cities in Japan.
- G. Explain the degree to which a country's population growth rate may be affected by a pronatalist policy. (Response must indicate the degree [low, moderate, high] and provide an explanation.)

Map 1: Cow's Milk Production, 2018

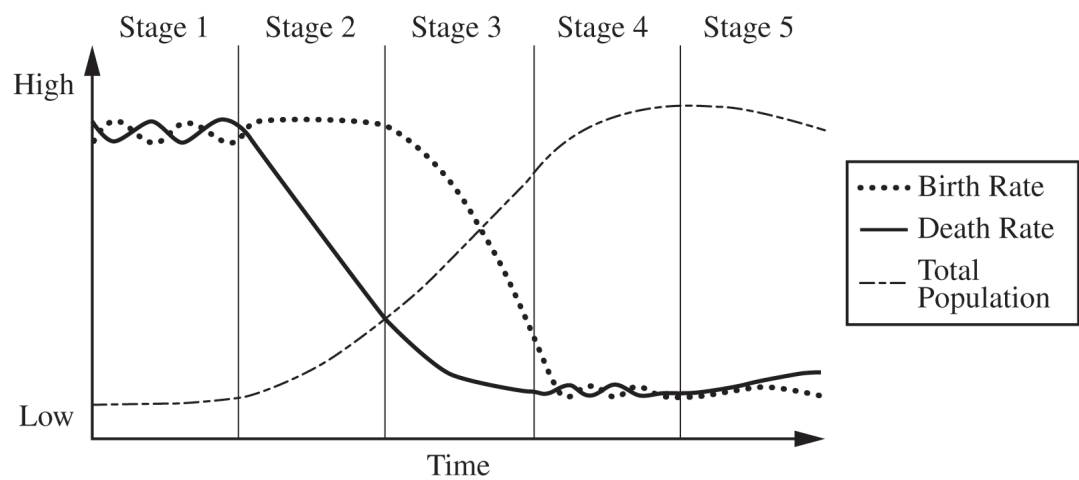
Source: Food and Agriculture Organization

Map 2: Pork Production, 2018

Source: Food and Agriculture Organization

Question 3

Demographic Transition Model



Demographic Data for Selected Countries, 2019

Country	Birth Rate	Death Rate	Population Over Age 65
Croatia	9	13	21%
Estonia	11	12	20%
Germany	9	11	22%
Greece	8	12	22%
Japan	7	11	28%
Portugal	8	11	23%
Romania	10	13	19%

Source: World Bank

3. The demographic transition model can be used to theorize the changes in a country’s total population over time.
- A. Select ONE country listed in the table and identify its stage in the demographic transition model.
 - B. Define the concept of a pronatalist policy.
 - C. Explain ONE factor that affects birth rates as countries move from stage 3 to stage 4 in the demographic transition model.
 - D. Describe ONE likely economic effect when countries have negative population growth.
 - E. Based on the data shown in the table, describe a policy that a government might develop in response to demographic change.
 - F. Explain ONE reason why the life expectancy in urban areas may be higher than the life expectancy in the entire country.
 - G. Using the data in the table, explain how, over time, low birth rates may impact the country’s percent of population over age 65.

STOP

END OF EXAM

2.4 Population Dynamics

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS rate of natural increase 自然增长率 • doubling time 倍增时间 • total fertility rate 总和生育率
• migration 迁移 • infant mortality rate 婴儿死亡率

Objective

Build the skills to answer exam questions on **population dynamics** 人口动态 — birth, death, and growth rates.

You must be able to:

- define **crude birth rate** 粗出生率 (CBR), **crude death rate** 粗死亡率 (CDR), and **rate of natural increase** 自然增长率 (RNI)
- define **total fertility rate** 总和生育率 (TFR) and **infant mortality rate** 婴儿死亡率 (IMR)
- calculate RNI from CBR and CDR
- explain **doubling time** 倍增时间

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Key rates

CBR = births per 1,000 people per year. **CDR** = deaths per 1,000. **RNI** = (CBR – CDR) ÷ 10, as a percent (migration excluded).

■ TFR and IMR

TFR = average children per woman; a TFR near **2.1** is replacement level. **IMR** = deaths under age 1 per 1,000 live births — a strong indicator of development.

■ Doubling time

Doubling time $\approx 70 \div \text{RNI (in \%)}$. An RNI of 2% doubles a population in about 35 years.

2 Practice

2.1 Define the rate of natural increase. [2]

2.2 A country has a CBR of 30 and a CDR of 10. Calculate its RNI. [2]

2.3 Country Y has a TFR of 1.6.

(a) State whether this is above or below replacement level. [1]

(b) Predict what happens to the population size over time, ignoring migration. [1]

3 Exam-style questions

3.1 Replacement-level fertility is a total fertility rate of about [1]

- A 0.5
- B 1.0
- C 2.1
- D 4.0

3.2 With an RNI of 2% per year, the population doubles in roughly [1]

- A 7 years
- B 35 years
- C 70 years
- D 140 years

3.3 A country's infant mortality rate falls sharply over 20 years.

(a) State what IMR measures. [1]

(b) Explain what the fall suggests about development. [1]

Solutions

2.1 the percentage growth of a population from births minus deaths, excluding migration.

2.2 $(30 - 10) \div 10 = 2.0\%$.

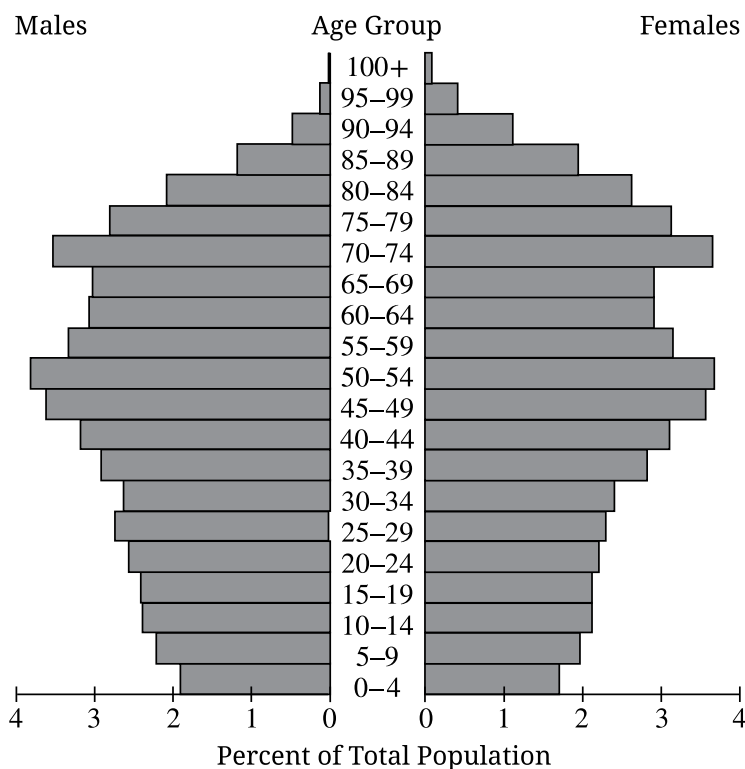
2.3 (a) below replacement (2.1). (b) the population will shrink/decline over time.

3.1 C. about 2.1 children per woman replaces a couple plus child mortality.

3.2 B. $70 \div 2 = 35$ years.

3.3 (a) deaths of infants under age 1 per 1,000 live births. (b) improving health care, nutrition, and sanitation — rising development.

Japan Population Pyramid, 2021

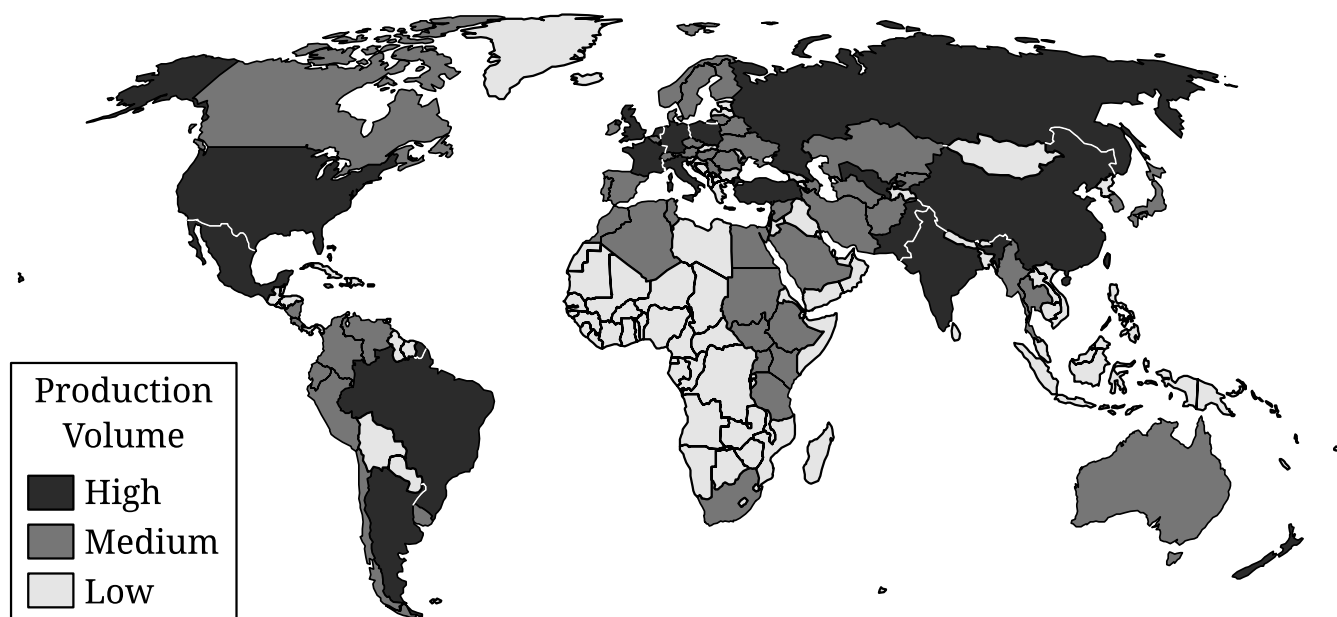


Source: United States Census Bureau International Database

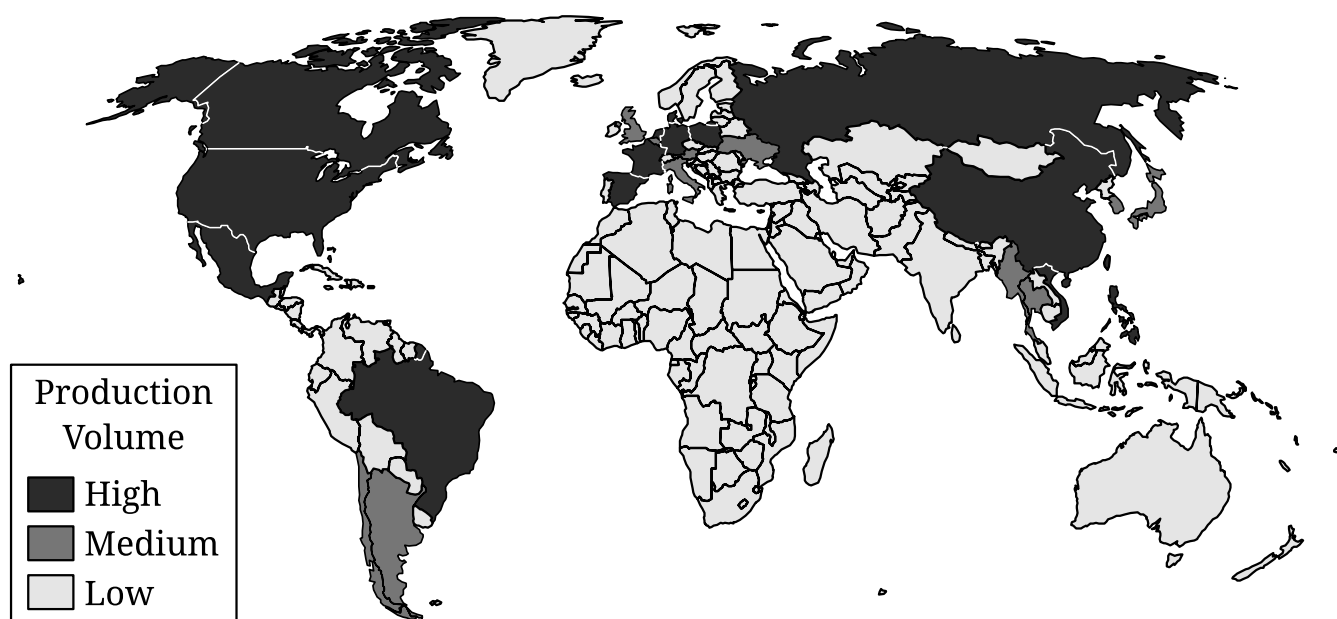
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- Describe one process that drives urbanization.
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- Explain the degree to which a country's population growth rate may be affected by a pronatalist policy. (Response must indicate the degree [low, moderate, high] and provide an explanation.)

Map 1: Cow's Milk Production, 2018

Source: Food and Agriculture Organization

Map 2: Pork Production, 2018

Source: Food and Agriculture Organization

HUMAN GEOGRAPHY**SECTION II****Time—1 hour and 15 minutes****3 Questions**

Directions: You have 1 hour and 15 minutes to answer all three of the following questions. It is recommended that you spend approximately one-third of your time (25 minutes) on each question. It is suggested that you take up to 5 minutes of this time to plan and outline each answer. You may plan your answers in this orange booklet, but no credit will be given for anything written in this booklet. **You will only earn credit for what you write in the separate Free Response booklet.**

Question 1

1. The rate of natural increase (RNI), also known as the natural increase rate, helps geographers assess annual population growth or decline.
 - A. Define the concept of RNI.
 - B. Describe how a country may have a negative RNI.
 - C. Compare ONE difference between RNI and the total fertility rate as indicators of population change.
 - D. Explain ONE reason why RNI in urban areas may vary significantly from RNI in rural areas in the same country.
 - E. Explain why there are often differences in doubling times between less developed countries and more developed countries.
 - F. Explain ONE reason ethnonationalism might lead a government to promote pronatalist policies.
 - G. Explain the degree to which a unitary government may be more effective than a federal government in enforcing antinatalist policies.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

2.5 The Demographic Transition Model

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS demographic transition model 人口转变模型 • migration 迁移

Objective

Build the skills to answer exam questions on the **Demographic Transition Model** 人口转变模型 (DTM).

You must be able to:

- describe the birth and death rates in each of the DTM's five stages
- explain why the death rate falls before the birth rate
- place a country in a DTM stage from its rates
- state one limitation of the DTM

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ The five stages

Stage 1: high CBR and CDR (stable). Stage 2: CDR falls, CBR high (fast growth). Stage 3: CBR falls (slowing growth). Stage 4: both low (stable). Stage 5: CBR below CDR (decline).

■ Why death falls first

Better food, water, sanitation, and medicine cut the **death rate** early. The **birth rate** stays high longer because family size is cultural and slow to change — so Stage 2 grows fast.

■ Limitations

The DTM is based on Europe's history, assumes all countries follow the same path, and ignores migration and government policy.

2 Practice

2.1 Describe the birth and death rates in Stage 2 of the DTM.

[2]

2.2 Explain why the death rate falls before the birth rate. [2]

2.3 Country Z has a low death rate and a birth rate that has recently begun to fall.

(a) Which DTM stage is it in? [1]

(b) State what is happening to its growth rate. [1]

3 Exam-style questions

3.1 In Stage 4 of the DTM, birth and death rates are both [1]

- **A** high
- **B** low
- **C** rising
- **D** unequal by 20 per 1000

3.2 One valid criticism of the DTM is that it [1]

- **A** shows death rates
- **B** is based on European history and ignores migration
- **C** has five stages
- **D** uses birth and death rates

3.3 A country has very high birth and death rates that roughly balance.

(a) Which DTM stage is this? [1]

(b) Explain why almost no countries are in this stage today. [1]

Solutions

2.1 death rate falling; birth rate still high → rapid natural increase.

2.2 improved food, sanitation, and medicine quickly cut deaths; high fertility persists as cultural attitudes to family size change slowly.

2.3 (a) Stage 3. (b) growth is slowing (still positive but decelerating).

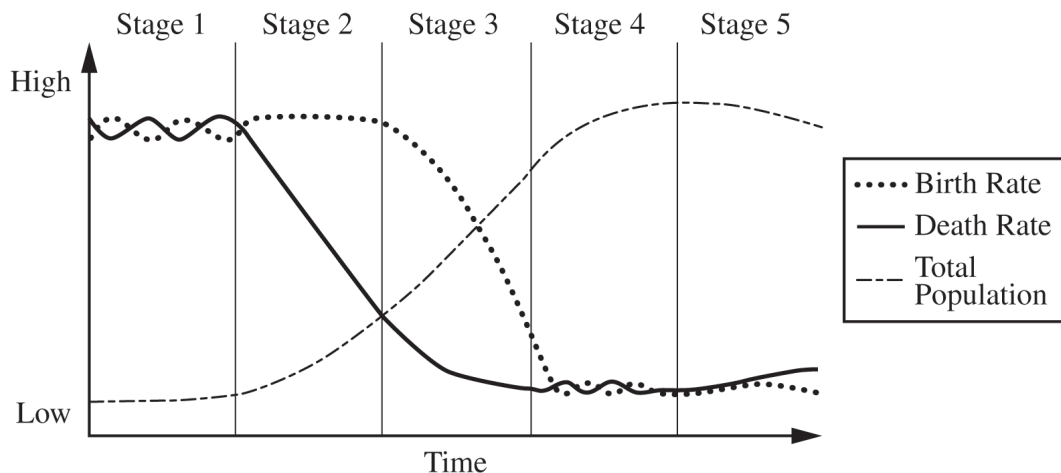
3.1 B. Stage 4 has low birth and low death rates, near-stable population.

3.2 B. the model generalises from Europe and omits migration/policy.

3.3 (a) Stage 1. (b) modern medicine/sanitation have cut death rates almost everywhere, moving countries to Stage 2+.

Question 3

Demographic Transition Model



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Croatia	9	13	21%
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Source: World Bank

3. The demographic transition model can be used to theorize the changes in a country's total population over time.
- Select ONE country listed in the table and identify its stage in the demographic transition model.
 - Define the concept of a pronatalist policy.
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 - Describe ONE likely economic effect when countries have negative population growth.
 - Based on the data shown in the table, describe a policy that a government might develop in response to demographic change.
 - Explain ONE reason why the life expectancy in urban areas may be higher than the life expectancy in the entire country.
 - Using the data in the table, explain how, over time, low birth rates may impact the country's percent of population over age 65.

STOP

END OF EXAM

HUMAN GEOGRAPHY**SECTION II****Time—1 hour and 15 minutes****3 Questions**

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2.6 Malthusian Theory

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS malthusian theory 马尔萨斯理论 • neo-malthusians 新马尔萨斯主义者 • exponentially 指数式
 • population pyramid 人口金字塔

Objective

Build the skills to answer exam questions on **Malthusian theory** 马尔萨斯理论 and its critics.

You must be able to:

- state Malthus's argument about population and food
- explain the difference between geometric and arithmetic growth in his theory
- summarise how **neo-Malthusians** 新马尔萨斯主义者 update the idea
- give one criticism of Malthus

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Malthus's argument

Thomas Malthus argued **population grows geometrically** (1, 2, 4, 8...) while **food grows arithmetically** (1, 2, 3, 4...), so population would outrun food and cause famine.

■ Neo-Malthusians

Neo-Malthusians extend the worry to all resources (water, energy, land) and a larger global population, warning of shortages and environmental limits.

■ Criticisms

Critics note Malthus underestimated **technology** — the Green Revolution raised food output hugely — and ignored that development lowers fertility.

2 Practice

2.1 State Malthus's central claim about population and food supply. [2]

2.2 State one reason Malthus's prediction has not come true for the world as a whole.[2]

2.3 A modern writer warns that a growing population will exhaust fresh water and energy.

(a) Which updated theory is this? [1]

(b) State how it differs from Malthus's original focus. [1]

3 Exam-style questions

3.1 Malthus argued that food supply increases [1]

- **A** geometrically
- **B** arithmetically
- **C** exponentially
- **D** not at all

3.2 The strongest evidence against Malthus is the [1]

- **A** population pyramid
- **B** Green Revolution's rise in food output
- **C** sex ratio
- **D** distance decay effect

3.3 Two students debate Malthus.

(a) State one factor Malthus underestimated. [1]

(b) Explain why some still find neo-Malthusian ideas relevant. [1]

Solutions

2.1 population grows faster (geometrically) than food (arithmetically); so population outstrips food, causing famine.

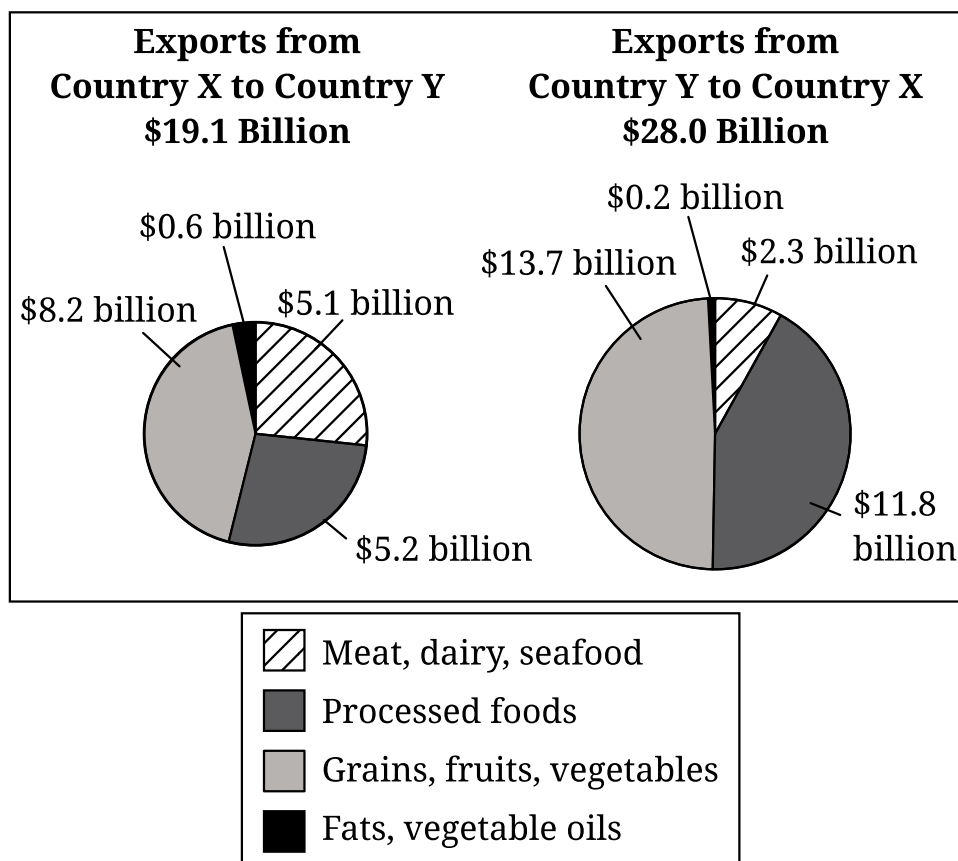
2.2 technology/the Green Revolution raised food output far beyond his estimate; fertility also fell as countries developed.

2.3 (a) neo-Malthusian. (b) it extends the concern from food to all resources/the environment.

3.1 B. food grows arithmetically (1,2,3,4) in his theory.

3.2 B. technology (Green Revolution) massively raised food supply.

3.3 (a) technological progress in agriculture. (b) some resources (water, fossil fuels, arable land) really are finite and under pressure.

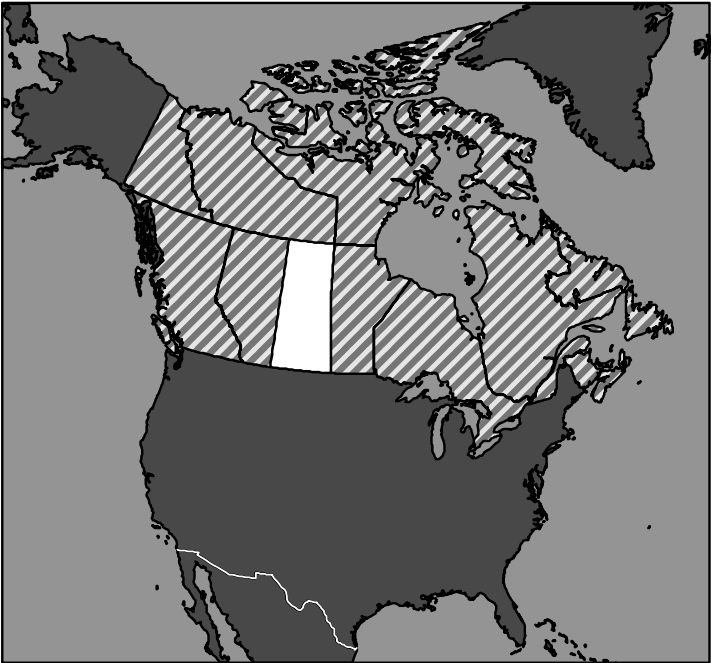
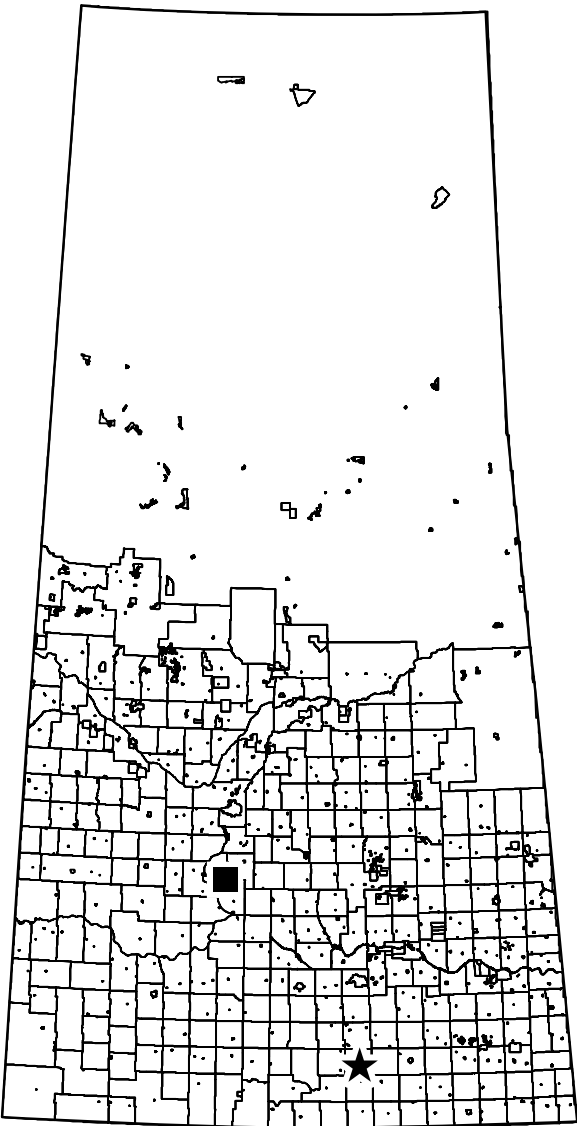
Food Exports Between Country X and Country Y

2. Country X and Country Y have a long-established trade relationship in agricultural products. Country X is a developed country, and Country Y is a developing country.

Respond to parts A, B, C, D, E, F, and G.

- Using the data in the charts, identify the largest food export category between the two countries.
- Using the data in the charts, describe the difference between the two countries in the meat, dairy, and seafood category.
- Define the concept of comparative advantage.
- Describe one effect of Green Revolution technologies on food supplies in developing countries.
- Explain how advances in agricultural technology may increase the carrying capacity of land.
- Explain the degree to which the economies of Country X and Country Y are interdependent. (Response must indicate the degree [low, moderate, high] and provide an explanation.)
- Explain how the charts provide limited information about economic development.

Map 1: Political Divisions in Saskatchewan, Canada



- Saskatchewan
- Other Canadian provinces and territories
- Other countries

0 100 miles

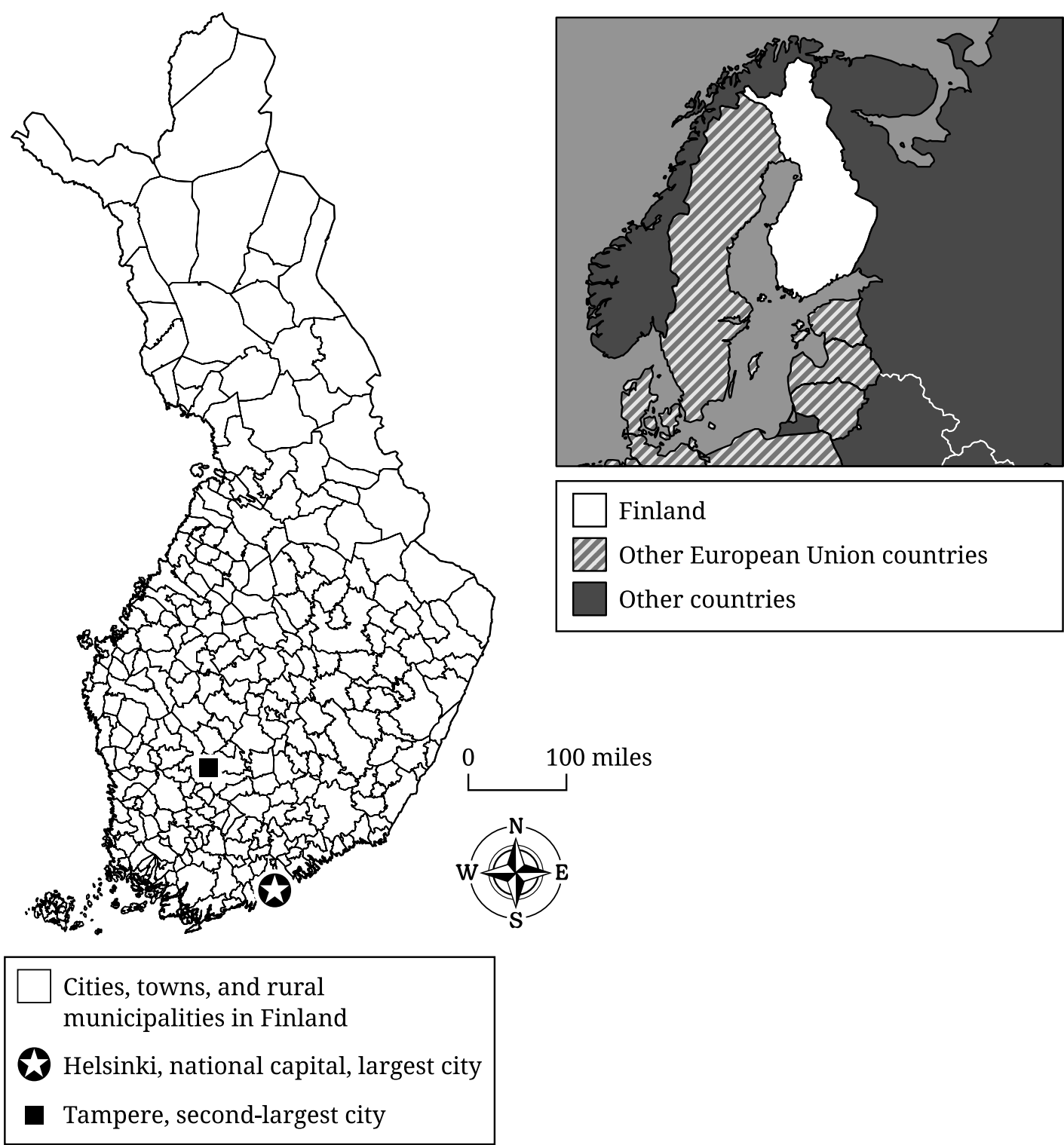


- Cities, towns, and rural municipalities in Saskatchewan
- ★

 Regina, provincial capital, second-largest city
- Saskatoon, largest city

Source: Statistics Canada

Map 2: Political Divisions in Finland



Source: ESRI Data Partners

HUMAN GEOGRAPHY**SECTION II****Time—1 hour and 15 minutes****3 Questions**

Directions: You have 1 hour and 15 minutes to answer all three of the following questions. It is recommended that you spend approximately one-third of your time (25 minutes) on each question. It is suggested that you take up to 5 minutes of this time to plan and outline each answer. You may plan your answers in this orange booklet, but no credit will be given for anything written in this booklet. **You will only earn credit for what you write in the separate Free Response booklet.**

Question 1

1. The availability of food in the context of a growing world population is influenced by many social, environmental, and economic factors.
 - A. Define the concept of carrying capacity.
 - B. Describe ONE way that humans have altered the environmental sustainability of agricultural lands.
 - C. Explain how transportation technology has increased economies of scale in the agricultural sector of less developed countries.
 - D. Explain a likely negative economic outcome of Green Revolution agricultural practices on rural communities.
 - E. Explain ONE weakness of Malthusian theory in predicting the relationship between food production and population growth in contemporary society.
 - F. Explain how surplus food production has changed the global market for local agricultural products.
 - G. Explain the degree to which Green Revolution agricultural practices were effective in reducing hunger in less developed countries. (Response must indicate the degree [low, moderate, high] and provide an explanation.)

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

2.7 Population Policies

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS anti-natalist 限制生育 • pro-natalist 鼓励生育 • population policies 人口政策 • migration 迁移

Objective

Build the skills to answer exam questions on **population policies** 人口政策.

You must be able to:

- distinguish **pro-natalist** 鼓励生育 from **anti-natalist** 限制生育 policies
- give an example of each type
- explain why a government adopts each type
- state one consequence of a strict anti-natalist policy

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Pro-natalist vs anti-natalist

A **pro-natalist** policy encourages births (cash bonuses, parental leave) — used where fertility is very low. An **anti-natalist** policy discourages births — used where growth strains resources.

■ Why governments intervene

Low-fertility, aging countries fear a shrinking workforce, so they go **pro-natalist**. Fast-growing countries fear resource strain, so they go **anti-natalist** (family planning, limits).

■ Consequences

A strict anti-natalist policy can lower fertility but cause a skewed **sex ratio**, an aging population, and a future labour shortage.

2 Practice

2.1 Define a pro-natalist policy and give one example. [2]

2.2 Explain why a low-fertility country might adopt a pro-natalist policy. [2]

2.3 A rapidly growing country introduces family-planning limits.

(a) What type of policy is this? [1]

(b) State one unintended consequence such a policy can cause. [1]

3 Exam-style questions

3.1 Offering cash bonuses for each new baby is a [1]

- **A** anti-natalist policy
- **B** pro-natalist policy
- **C** migration policy
- **D** measure of development

3.2 A country worried about resource strain from rapid growth is most likely to adopt an [1]

- **A** pro-natalist policy
- **B** anti-natalist policy
- **C** open-border policy
- **D** aging policy

3.3 Decades after a strict one-child style policy, a country now offers incentives to have more children.

(a) Explain why the policy switched from anti- to pro-natalist.

[2]

Solutions

2.1 a policy encouraging more births; e.g. baby bonuses, paid parental leave, childcare subsidies.

2.2 its workforce is shrinking and population aging; more births would sustain the labour force and support the elderly.

2.3 (a) anti-natalist. (b) skewed sex ratio, aging population, or future labour shortage.

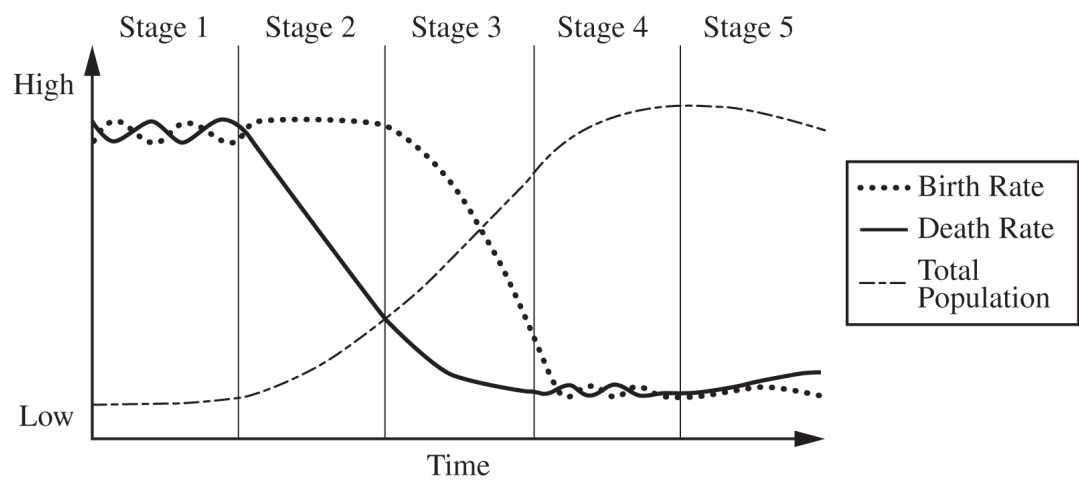
3.1 B. rewarding births encourages them — pro-natalist.

3.2 B. to slow growth it discourages births — anti-natalist.

3.3 (a) the earlier policy over-lowered fertility, causing an aging population and shrinking workforce, so the government now encourages births to rebalance.

Question 3

Demographic Transition Model



Demographic Data for Selected Countries, 2019

Country	Birth Rate	Death Rate	Population Over Age 65
Croatia	9	13	21%
Estonia	11	12	20%
Germany	9	11	22%
Greece	8	12	22%
Japan	7	11	28%
Portugal	8	11	23%
Romania	10	13	19%

Source: World Bank

3. The demographic transition model can be used to theorize the changes in a country’s total population over time.
- A. Select ONE country listed in the table and identify its stage in the demographic transition model.
 - B. Define the concept of a pronatalist policy.
 - C. Explain ONE factor that affects birth rates as countries move from stage 3 to stage 4 in the demographic transition model.
 - D. Describe ONE likely economic effect when countries have negative population growth.
 - E. Based on the data shown in the table, describe a policy that a government might develop in response to demographic change.
 - F. Explain ONE reason why the life expectancy in urban areas may be higher than the life expectancy in the entire country.
 - G. Using the data in the table, explain how, over time, low birth rates may impact the country’s percent of population over age 65.

STOP

END OF EXAM

HUMAN GEOGRAPHY**SECTION II****Time—1 hour and 15 minutes****3 Questions**

Directions: You have 1 hour and 15 minutes to answer all three of the following questions. It is recommended that you spend approximately one-third of your time (25 minutes) on each question. It is suggested that you take up to 5 minutes of this time to plan and outline each answer. You may plan your answers in this orange booklet, but no credit will be given for anything written in this booklet. **You will only earn credit for what you write in the separate Free Response booklet.**

Question 1

1. The rate of natural increase (RNI), also known as the natural increase rate, helps geographers assess annual population growth or decline.
 - A. Define the concept of RNI.
 - B. Describe how a country may have a negative RNI.
 - C. Compare ONE difference between RNI and the total fertility rate as indicators of population change.
 - D. Explain ONE reason why RNI in urban areas may vary significantly from RNI in rural areas in the same country.
 - E. Explain why there are often differences in doubling times between less developed countries and more developed countries.
 - F. Explain ONE reason ethnonationalism might lead a government to promote pronatalist policies.
 - G. Explain the degree to which a unitary government may be more effective than a federal government in enforcing antinatalist policies.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

2.8 Women and Demographic Change

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS education 教育 • status of women 妇女地位

Objective

Build the skills to answer exam questions on the link between the **status of women** 妇女地位 and fertility.

You must be able to:

- explain how female **education** 教育 lowers fertility
- explain how female employment lowers fertility
- link women's access to health care to lower infant mortality
- connect these changes to the DTM

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Education and fertility

As girls stay in school longer, they marry later, gain knowledge of **family planning**, and choose smaller families — so fertility falls.

■ Employment and health

Paid work raises the **opportunity cost** of many children, and better health care and contraception cut both fertility and **infant mortality**.

■ Link to the DTM

Rising female status is a key driver of the fertility decline seen in Stages 3-4 of the DTM.

2 Practice

2.1 Explain how educating girls tends to lower a country's fertility rate. [2]

2.2 State how women's employment affects family size. [2]

2.3 A country expands female education and access to clinics.

(a) Predict the effect on the total fertility rate. [1]

(b) Predict the effect on the infant mortality rate. [1]

3 Exam-style questions

3.1 Which change is most strongly associated with falling fertility? [1]

- **A** lower female literacy
- **B** rising female education and employment
- **C** banning contraception
- **D** younger marriage

3.2 Rising female status usually moves a country toward DTM [1]

- **A** Stage 1
- **B** Stages 3-4 (lower fertility)
- **C** higher death rates
- **D** Stage 2 growth

3.3 Two regions differ sharply in female education.

(a) Which region likely has the higher TFR — more or less educated? [1]

(b) Explain the link. [1]

Solutions

2.1 educated women marry later and know about family planning; they choose smaller families / careers, so fertility falls.

2.2 paid work raises the opportunity cost of children/time; families tend to be smaller.

2.3 (a) TFR falls. (b) IMR falls (better maternal/infant health).

3.1 B. female education and employment strongly lower fertility.

3.2 B. lower fertility shifts a country into Stages 3-4.

3.3 (a) the less-educated region. (b) less schooling → earlier marriage, less family planning, larger families.

HUMAN GEOGRAPHY**SECTION II****Time—1 hour and 15 minutes****3 Questions**

Directions: You have 1 hour and 15 minutes to answer all three of the following questions. It is recommended that you spend approximately one-third of your time (25 minutes) on each question. It is suggested that you take up to 5 minutes of this time to plan and outline each answer. You may plan your answers in this orange booklet, but no credit will be given for anything written in this booklet. **You will only earn credit for what you write in the separate Free Response booklet.**

Question 1

1. The rate of natural increase (RNI), also known as the natural increase rate, helps geographers assess annual population growth or decline.
 - A. Define the concept of RNI.
 - B. Describe how a country may have a negative RNI.
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 - F. Explain ONE reason ethnonationalism might lead a government to promote pronatalist policies.
 - G. Explain the degree to which a unitary government may be more effective than a federal government in enforcing antinatalist policies.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

2.9 Aging Populations

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS dependency ratio 老年抚养比 • aging populations 老龄化人口 • migration 迁移 • pro-natalist 鼓励生育

Objective

Build the skills to answer exam questions on **aging populations** 老龄化人口.

You must be able to:

- explain why populations age (low fertility, longer life)
- define the elderly **dependency ratio** 老年抚养比
- state the economic challenges of an aging population
- give one policy response to aging

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Why populations age

Populations age when **fertility falls** (fewer young) and **life expectancy rises** (more elderly), enlarging the older share of the population.

■ Elderly dependency

The **elderly dependency ratio** compares people over 64 to the working-age population. A high ratio means fewer workers support each retiree.

■ Challenges and responses

Aging strains **pensions and health care** and shrinks the workforce. Responses include raising the retirement age, encouraging immigration, or pro-natalist policies.

2 Practice

2.1 State two reasons a population ages. [2]

2.2 Explain one economic challenge of an aging population. [2]

2.3 A country's over-65 share is rising fast.

(a) Name the ratio that captures this burden. [1]

(b) State one government policy to ease it. [1]

3 Exam-style questions

3.1 An aging population is caused mainly by [1]

- **A** high fertility and high mortality
- **B** low fertility and rising life expectancy
- **C** rapid immigration of youth
- **D** a high infant mortality rate

3.2 A policy directly aimed at offsetting a shrinking workforce is [1]

- **A** banning immigration
- **B** encouraging youth immigration
- **C** lowering the retirement age
- **D** raising infant mortality

3.3 An aging country debates raising its retirement age.

(a) Explain how this helps with the dependency ratio. [1]

(b) State one drawback of the policy. [1]

Solutions

2.1 falling fertility / fewer children; rising life expectancy / people living longer.

2.2 fewer workers support more retirees; higher pension and health-care costs / labour shortage.

2.3 (a) the elderly dependency ratio. (b) raise retirement age / encourage immigration / pro-natalist incentives.

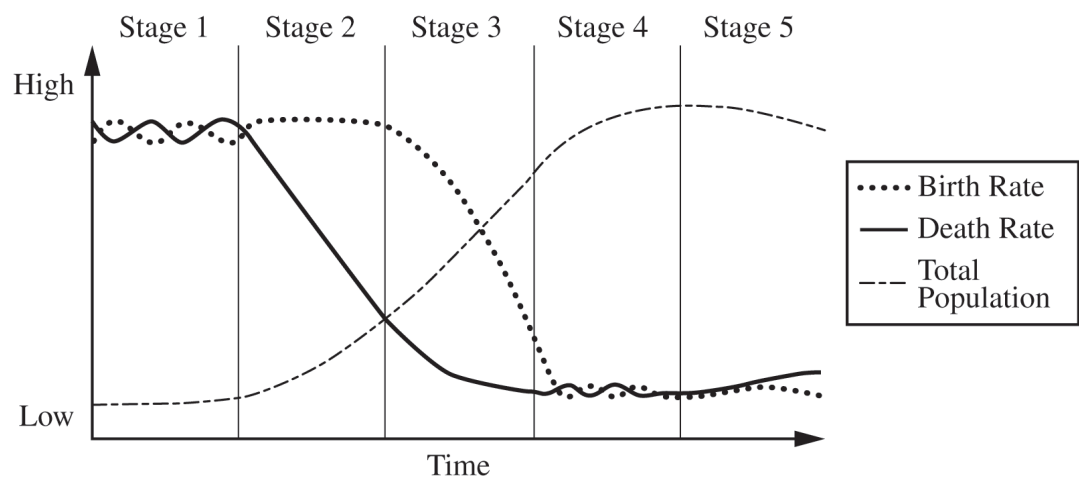
3.1 B. fewer births plus longer lives age a population.

3.2 B. youth immigration adds workers to a shrinking labour force.

3.3 (a) it keeps more people in the workforce, lowering the dependency ratio. (b) older workers may be unable to work / it is politically unpopular.

Question 3

Demographic Transition Model



Demographic Data for Selected Countries, 2019

Country	Birth Rate	Death Rate	Population Over Age 65
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Source: World Bank

3. The demographic transition model can be used to theorize the changes in a country’s total population over time.
- A. Select ONE country listed in the table and identify its stage in the demographic transition model.
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 - E. Based on the data shown in the table, describe a policy that a government might develop in response to demographic change.
 - F. Explain ONE reason why the life expectancy in urban areas may be higher than the life expectancy in the entire country.
 - G. Using the data in the table, explain how, over time, low birth rates may impact the country’s percent of population over age 65.

STOP

END OF EXAM



2.10 Causes of Migration

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS pull factors 拉力 • push factors 推力 • ravenstein's laws 拉文斯坦法则 • causes of migration 迁移原因
• intervening obstacles 阻碍因素

Objective

Build the skills to answer exam questions on the **causes of migration** 迁移原因.

You must be able to:

- distinguish **push factors** 推力 from **pull factors** 拉力
- define **intervening obstacles** 阻碍因素 and **intervening opportunities** 中介机会
- give economic, political, and environmental examples
- recognise a key idea from **Ravenstein's laws** 拉文斯坦法则

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Push and pull

Push factors drive people away (unemployment, war, drought). **Pull factors** draw them to a destination (jobs, safety, family). Most moves combine both.

■ Intervening factors

An **intervening obstacle** blocks a move (a border, a mountain, cost). An **intervening opportunity** diverts a migrant to a nearer chance before the original goal.

■ Ravenstein

Ravenstein's laws note that most migrants move short distances, for economic reasons, in steps, and that each flow produces a counter-flow.

2 Practice

2.1 State one push factor and one pull factor for migration. [2]

2.2 Define an intervening obstacle and give one example. [2]

2.3 A worker leaves a drought-hit farm and moves to a city with factory jobs.

(a) Identify the push factor. [1]

(b) Identify the pull factor. [1]

3 Exam-style questions

3.1 A civil war forcing people to leave their country is a [1]

- **A** pull factor
- **B** push factor
- **C** intervening opportunity
- **D** counter-flow

3.2 A migrant stops in a nearer town that offers work before reaching the intended city. This is an [1]

- **A** intervening obstacle
- **B** intervening opportunity
- **C** pull factor
- **D** chain migration

3.3 According to Ravenstein, most migrants move short distances for economic reasons.

(a) State what usually accompanies each large migration flow. [1]

(b) Give one economic pull factor for a long-distance move.

[1]

Solutions

2.1 push: unemployment, war, disaster, persecution; pull: jobs, safety, family, services.

2.2 something that hinders/blocks a migrant's journey; e.g. a closed border, a desert, high travel cost.

2.3 (a) drought / farm failure. (b) factory jobs / income in the city.

3.1 B. danger driving people away is a push factor.

3.2 B. a nearer chance that diverts the move is an intervening opportunity.

3.3 (a) a counter-flow / return migration in the opposite direction. (b) higher wages / job opportunities in a distant city or country.

3. Pastoral nomadism is widely practiced in the Sahel region of Africa. The map and table provide information about spatial patterns and social tensions associated with this type of agriculture.
- A. Describe ONE reason for the migration patterns shown on the map.
 - B. Describe ONE cause of desertification in the Sahel region.
 - C. Explain how pastoral nomadism may affect the cultural landscape of the Sahel region.
 - D. Explain ONE way mixed-crop farming could be affected by climatic conditions.
 - E. Using the map and table, explain why expanding protected natural areas may affect the migration routes of nomadic herders in the Sahel region.
 - F. Using the information in the table, explain why farmers' increased use of irrigation may increase conflicts with nomadic herders.
 - G. Explain the degree to which increased access to communication technologies may create cultural convergence among nomadic herders.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

STOP

END OF EXAM

2.11 Forced and Voluntary Migration

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS voluntary migration 自愿迁移 • refugee 难民 • forced 被迫迁移 • internally displaced person 境内流离失所者
• transnational 跨国迁移

Objective

Build the skills to answer exam questions on **forced** 被迫迁移 and **voluntary migration** 自愿迁移.

You must be able to:

- distinguish forced from voluntary migration
- define **refugee** 难民, **asylum seeker** 寻求庇护者, and **internally displaced person** 境内流离失所者
- distinguish **chain** 连锁迁移, **step** 阶梯迁移, and **transnational** 跨国迁移 migration
- give an example of each

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Forced vs voluntary

Forced migration gives no real choice (war, disaster, persecution). **Voluntary migration** is chosen, usually for economic or family reasons.

■ Refugees, asylum seekers, IDPs

A **refugee** has fled across a border for safety. An **asylum seeker** has applied for refugee status. An **internally displaced person** has fled but stayed inside their own country.

■ Patterns of movement

Chain migration: people follow relatives already abroad. **Step migration**: a series of smaller moves toward a goal. **Transnational**: keeping strong ties across two countries.

2 Practice

2.1 State the difference between a refugee and an internally displaced person. [2]

2.2 Define chain migration. [2]

2.3 A family flees fighting, moving first to a nearby town, then to the capital, then abroad.

(a) Name this pattern of movement. [1]

(b) State whether the migration is forced or voluntary. [1]

3 Exam-style questions

3.1 A person who has crossed a border to escape persecution and been granted protection is a [1]

- **A** voluntary migrant
- **B** refugee
- **C** internally displaced person
- **D** transnational commuter

3.2 Migrants who maintain strong economic and cultural ties to both their old and new country are [1]

- **A** step migrants
- **B** transnational migrants
- **C** internally displaced persons
- **D** intervening obstacles

3.3 Thousands flee a flood but remain within their own country's borders.

(a) What term describes them? [1]

(b) Explain why they are not classed as refugees.

[1]

Solutions

2.1 a refugee crosses an international border; an IDP is forced to move but stays within their own country.

2.2 migrating to join relatives/community already at a destination, who help newcomers settle.

2.3 (a) step migration. (b) forced (fleeing fighting).

3.1 B. cross-border flight from persecution defines a refugee.

3.2 B. keeping ties across borders is transnational migration.

3.3 (a) internally displaced persons (IDPs). (b) they have not crossed an international border.

- 1.** Migration contributes to significant population growth and change in urban landscapes. As populations increase, urban areas face economic, social, and environmental challenges.

Respond to parts A, B, C, D, E, F, and G.

- A.** Describe one type of voluntary migration.
- B.** Explain how migration may affect a city's economy.
- C.** Describe one type of housing discrimination that may occur in urban areas.
- D.** Explain how a city's infrastructure affects society.
- E.** Describe one challenge to sustainability in urban areas.
- F.** Explain how urban design initiatives are intended to affect cities.
- G.** Explain why urban design initiatives may be criticized.

2.12 Effects of Migration

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS brain drain 人才流失 • remittances 侨汇 • effects of migration 迁移影响 • migration 迁移

Objective

Build the skills to answer exam questions on the **effects of migration** 迁移影响 on origin and destination.

You must be able to:

- explain **remittances** 侨汇 and their effect on the origin country
- define **brain drain** 人才流失
- state demographic effects on origin and destination populations
- give one social effect in the destination

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Remittances

Remittances are money migrants send home. They can lift families out of poverty and are a major income source for many origin countries.

■ Brain drain

Brain drain is the loss of skilled workers (doctors, engineers) when they emigrate — weakening the origin country's services and economy.

■ Demographic effects

Emigration removes mostly young working-age adults, aging the **origin** population; immigration adds young workers, often raising fertility in the **destination**.

2 Practice

2.1 Define remittances and state one effect on the origin country. [2]

2.2 Explain what brain drain is and why it harms the origin country. [2]

2.3 A country sees many young adults emigrate for work.

(a) State the effect on the origin country's age structure. [1]

(b) State one effect on the destination country's workforce. [1]

3 Exam-style questions

3.1 Money sent home by migrants to their families is called [1]

- **A** brain drain
- **B** remittances
- **C** carrying capacity
- **D** counter-flow

3.2 The emigration of a country's doctors and engineers is an example of [1]

- **A** chain migration
- **B** brain drain
- **C** a pull factor
- **D** an intervening obstacle

3.3 A destination city receives many young migrant workers.

(a) State one economic benefit to the destination. [1]

(b) State one social challenge it may create. [1]

Solutions

2.1 money migrants send home to family; it raises household income / reduces poverty / is a major income source.

2.2 the emigration of skilled/educated workers; it leaves the origin short of doctors, engineers, teachers.

2.3 (a) it ages — fewer young workers remain. (b) it gains young workers / a larger labour force.

3.1 B. migrant money sent home = remittances.

3.2 B. loss of skilled workers is brain drain.

3.3 (a) a larger labour force / filled jobs / more tax and spending. (b) pressure on housing/services or tension over cultural integration.

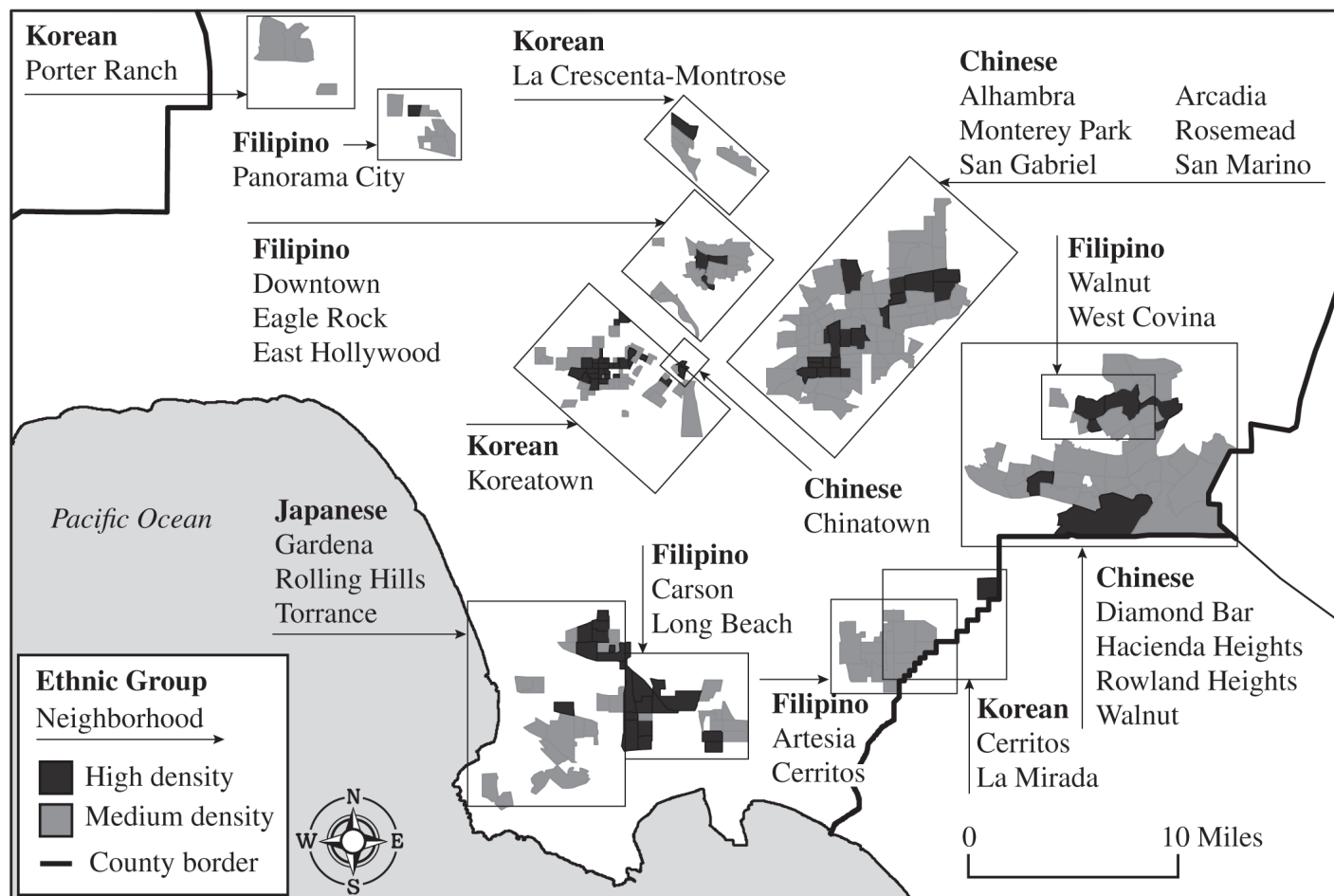
- 1.** Migration contributes to significant population growth and change in urban landscapes. As populations increase, urban areas face economic, social, and environmental challenges.

Respond to parts A, B, C, D, E, F, and G.

- A.** Describe one type of voluntary migration.
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- F.** Explain how urban design initiatives are intended to affect cities.
- G.** Explain why urban design initiatives may be criticized.

Question 2

Selected Asian Ethnic Neighborhoods in Los Angeles County, California



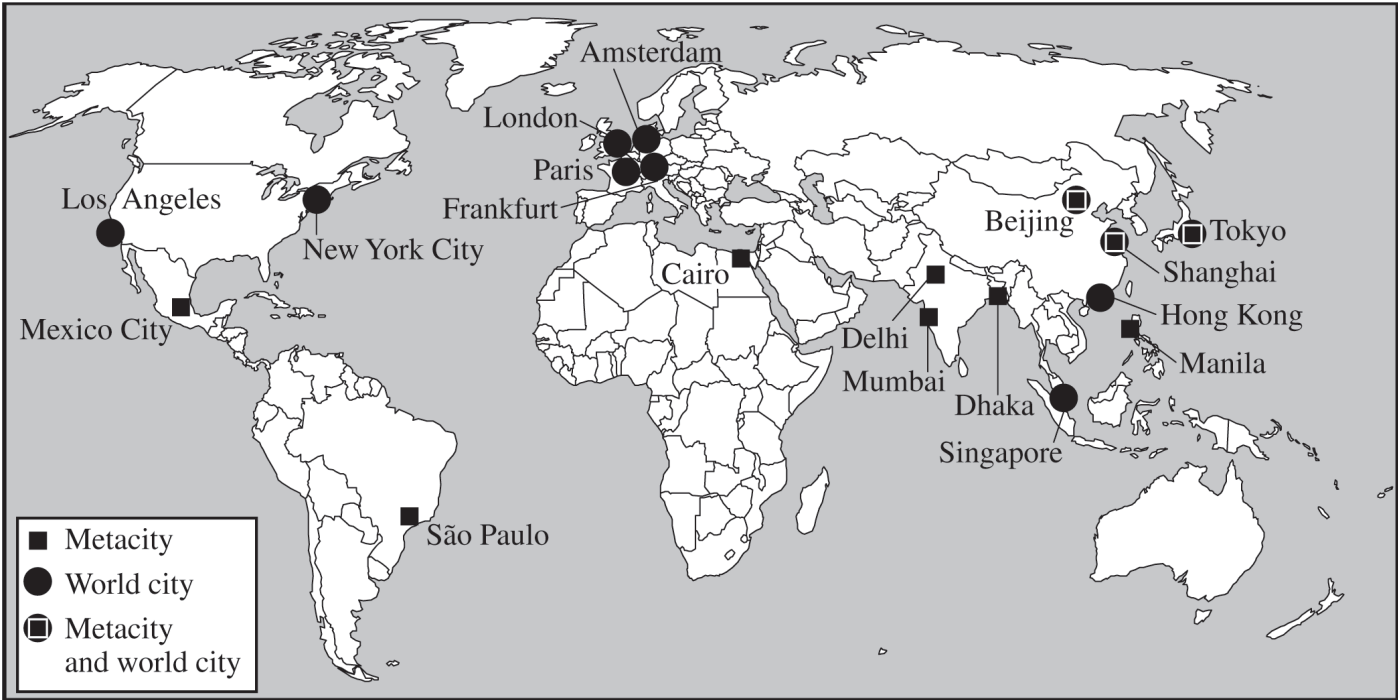
Source: United States Census Bureau

2. The map shows predominantly Asian ethnic neighborhoods in Los Angeles County, California. The names of the neighborhoods and the densities of the ethnic groups are identified on the map.
- Identify ONE neighborhood labeled on the map where two or more Asian ethnic groups reside.
 - Describe the spatial pattern of Chinese ethnic neighborhoods labeled on the map.
 - Explain ONE way immigrants may choose to assimilate into their new place of residence.
 - Explain ONE way immigrants may preserve their ethnic traditions in their new place of residence.
 - Describe ONE way that ethnic neighborhoods may contribute to a sense of place in large metropolitan areas such as Los Angeles.
 - Explain how the process of redistricting may be used to decrease an ethnic community's political power.
 - Explain how the process of redistricting may be used to increase an ethnic community's political power.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Question 3

Metacities and Top-Tier World Cities, 2020



Source: United Nations

Selected Cities

Urban Area	Population, 2000	Population, 2020	Population Growth, 2000 to 2020	City GDP per Capita, 2020	Country GDP per Capita, 2020
Cairo	13.6 million	20.9 million	54%	\$4,865	\$3,609
Dhaka	10.3 million	21.0 million	104%	\$7,920	\$2,001
New York City	17.9 million	18.8 million	5%	\$86,615	\$63,529
Paris	9.7 million	11.0 million	13%	\$71,346	\$39,180

Note: Values are estimates based on publicly available data.