1.1 Changing population

Name: _____ Class: _____ Date: _____ **Total: 26 marks**

KEY WORDS demographic transition model • dependency ratio

Changing population

Objective

Use the population measures (CBR, CDR, NIR, doubling time), read the demographic transition model and population pyramids, calculate the dependency ratio, and evaluate migration and population policy (core: population distribution–changing population).

1 Key knowledge and worked examples

Population toolkit. CBR and CDR are per 1 000 per year; NIR = CBR − CDR (18 − 9 = 0.9%); doubling time ≈ 70/NIR% (≈ 78 years); total change adds net migration. DTM stages 1–5 by CBR/CDR logic. Pyramids: expansive (youthful), stationary, constrictive (ageing). Dependency ratio = (0–14 + 65+)/15–64 × 100; 90/210 ≈ 43 per 100. Migration: push, pull, barriers (Lee); refugees (1951 Convention) vs IDPs vs economic migrants; remittances. Policy: pro-natalist (France), anti-natalist (China 1979–2015), neutral.

2 Practice

2.1 Define crude birth rate and crude death rate, stating the units of each. [2]

2.2 A country has CBR 18 per 1 000 and CDR 9 per 1 000. Calculate the natural increase rate and the approximate doubling time. [3]

2.3 State what happens to CBR and CDR in stage 2 of the demographic transition model, and name the growth result. [2]

2.4 A population has 60 children (0–14), 30 elderly (65+) and 210 of working age (15–64). Calculate the dependency ratio. [3]

2.5 Classify each as push or pull: (a) civil conflict at home; (b) higher wages abroad; (c) crop failure from drought. [3]

3 Exam-style questions

3.1 *(Data-response style.)* A district of 2 million has CBR 24 and CDR 8 per 1 000, with net out-migration of 12 per 1 000 a year. Calculate annual natural increase and total population growth, and explain what the difference implies for the district's age structure and services. [6]

3.2 *(Evaluate style.)* Using one anti-natalist policy example, examine its effects on fertility AND one unintended consequence. [4]

3.3 *(Migration style.)* Distinguish a refugee from an economic migrant, and explain one impact of remittances on a country of origin. [3]

Solutions

2.1 CBR: live births per 1 000 people per year (1). CDR: deaths per 1 000 people per year (1).

2.2 NIR = 18 − 9 = 9 per 1 000 = 0.9% a year (2). Doubling time ≈ 70/0.9 ≈ 78 years (1).

2.3 CDR falls sharply (medicine, sanitation, food) while CBR stays high (1); the gap between them produces explosive (rapid) natural increase (1).

2.4 Dependents = 60 + 30 = 90 (1); ratio = 90/210 × 100 ≈ 43 dependents per 100 of working age (2).

2.5 (a) Push – drives people out (1); (b) pull – draws people in (1); (c) push (1).

3.1 Natural increase = 24 − 8 = 16 per 1 000 = 1.6%; on 2 million that is 32 000 people a year (2). Total growth = natural increase + net migration = 16 − 12 = 4 per 1 000 = 0.4%, about 8 000 a year (2). The difference is out-migration of the young workforce: the district keeps its births but loses 15–34-year-olds, so the population ages even while growing – schools demand falls over time while elder care and health services rise, and the dependency ratio worsens (2).

3.2 China's one-child policy (1979–2015) penalised second births and tied benefits to small families: fertility fell well below replacement, slowing population growth as intended (2). Unintended consequences: a rapidly ageing population with a shrinking workforce, and a skewed sex ratio from son preference under the one-child limit – leading to the two-child and three-child reversals (2). (Any accurate anti-natalist example with intended plus unintended effects earns the marks.)

3.3 A refugee crosses an international border fleeing a well-founded fear of persecution, conflict or violence, protected by the 1951 Convention (1); an economic migrant moves by choice for work or living standards and has no Convention protection (1). Remittances add to the origin country's income (a major GDP share for Nepal or the Philippines), funding consumption, schooling and housing – while deepening dependence on migration itself (1).

Local review guidance: show the subtraction before the percentage and state the units; the difference between natural increase and total growth is migration – name who leaves; (R1) the "examine" item needs intended AND unintended effects. Authored classroom guidance.