2.1 Climate and resources

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

KEY WORDS vulnerability • ecological footprint

Climate and resources

Objective

Distinguish the causes and evidence of climate change, apply vulnerability and resilience, separate mitigation from adaptation, and work the resource-security arithmetic and strategies (core: global climate; global resource consumption and security).

1 Key knowledge and worked examples

Climate + resources toolkit. Causes: natural (orbital, solar, volcanic) vs anthropogenic (CO_2 from fossil fuels and land use, methane). Evidence: instruments, ice cores, sea level. Paris: well below 2°C, pursuing 1.5°C. Vulnerability is exposure plus sensitivity minus capacity; resilience reorganises. MITIGATION removes causes; ADAPTATION adjusts to impacts. Ecological footprint ≈ 2.6 gha per person vs biocapacity ≈ 1.6 gha ≈ 1.7 Earths. Agriculture ≈ 70% of freshwater withdrawals. Food security: availability, access, utilisation, stability. Consumerism vs stewardship.

2 Practice

2.1 Name one natural and one anthropogenic cause of climate change, with the mechanism of each. [2]

2.2 World average ecological footprint is about 2.6 gha per person and biocapacity about 1.6 gha. Calculate the number of Earths being used, and name the term for using more than biocapacity provides. [3]

2.3 Classify each as mitigation or adaptation: (a) a sea wall; (b) replacing coal with wind; (c) drought-resistant crops. [3]

2.4 Agriculture takes about 70% of global freshwater withdrawals. State one implication for water security as demand grows. [2]

2.5 Distinguish a renewable from a non-renewable resource, naming the condition a renewable must satisfy to stay renewable. [2]

3 Exam-style questions

3.1 *(Explain style.)* Explain why a low-lying, low-income delta country is more vulnerable to climate change than a wealthy inland state, using the vulnerability formula from the toolkit, and name one adaptation that builds its resilience. [6]

3.2 *(Evaluate style.)* "Renewable energy is the whole answer to mitigation." Evaluate this claim with one strength and two limitations. [4]

3.3 *(Food security style.)* A country produces enough grain in a normal year, yet a price spike leaves urban poor households unable to buy it. Identify which pillar of food security fails, and one policy that addresses it. [4]