Q1: Mining or Deforestation Case Study

Case study in a tropical region

Topics:

Location reasoning (e.g., proximity to resources or transport)

Abiotic/Biotic components of ecosystems

Environmental impacts of mining or deforestation

Biodiversity protection strategies (e.g., national parks, education, law enforcement)

Q2: Weather/Climate Interpretation

Climate data (temp + rainfall) comparison between two regions (MEDC vs LEDC)

Possible graph plotting or completion

Precipitation and temperature analysis

Effects of climate on agriculture or water availability

Q3: Water and Pollution

Water supply challenges in a densely populated or drought-prone area

Human impacts: domestic waste, industrial discharge, agricultural runoff

Eutrophication or nitrate-related water quality issues

Concepts: potable water, pollution control, water treatment, drought strategies

 SECTION B Predictions (Extended Response – Choose 2 out of 3)

Q4: Energy Use and Sustainability

Compare renewable and non-renewable energy

Suitability of energy types for LEDC or rural communities

Sustainable energy planning, carbon emissions, impacts on climate

Q5: Population Pressure and Urban Growth

Causes and effects of rural-urban migration

Impacts on housing, transport, air pollution

Strategies to reduce urban environmental stress (e.g., public transport, zoning, green spaces)

Q6: Food Security and Agriculture

Threats to food security from population growth or climate change

Sustainable farming methods (e.g., crop rotation, agroforestry)

Soil erosion and conservation methods Practice data interpretation (graphs, charts, photos)

Revise case studies for agriculture, mining, water, and energy

Prepare to evaluate, not just describe — limitations and benefits of the procedures and processes.

Use examples from LEDCs and MEDCs to strengthen answers

Know definitions and applications of key terms: sustainability, carrying capacity, ecological footprint, resource depletion do not only practice these questions please practice from all the lessons and past 4 year QPs • plan fieldwork investigations and do them safely

• suggest an aim or testable hypothesis based on scientific understanding

• identify the independent and dependent variables

• identify control variables that should be kept constant

• describe how and explain why variables should be kept constant

• suggest an appropriate number and range of values for the independent variable

• suggest the most appropriate apparatus, sampling technique and sampling strategy and justify the choices

made

• describe the scientific method for an investigation, including a suitable control where appropriate

• identify risks and suggest safety precautions

• identify apparatus from diagrams or descriptions

• draw, complete or label diagrams of apparatus

• explain the use of common techniques and apparatus

• select the most appropriate apparatus, sampling technique and sampling strategy for the task and justify

the choices made

• describe and explain hazards and safety precautions

• describe and explain techniques used to ensure the accuracy of observations and data

• describe how to record the results of an investigation

• take sufficient observations or measurements, including repeats and replicates where appropriate

• record observations and measurements systematically, for example in a suitable table or tally using

appropriate units

• describe how to process the results of an investigation to form a conclusion

• process data, including calculations or graph plotting, using a calculator as appropriate

• present data graphically

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• analyse and interpret observations and data, including data presented graphically

• use interpolation and extrapolation graphically to determine a gradient or intercept

• form conclusions based on observations and data with appropriate explanation and justification

• evaluate the quality of observations and data, identifying any anomalous results and taking appropriate

action

• evaluate sampling techniques and sampling strategies, including the use of a control

• identify sources of error

• suggest possible improvements to apparatus, sampling techniques and sampling strategies.