Mark Scheme (Results)

Summer 2017

Pearson Edexcel GCE in Geography (6GE04)
Unit 4: Geographical Research

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

QUESTION 1: 'Managing tectonic hazards successfully is largely dependent on the level of development.' Discuss.

● Explore how the effective management of hazards is dependent on a range of factors.
● Research the management of a range of hazardous events in both developed and developing countries.

INDICATIVE CONTENT

The general topic is the management of hazardous events in order to prevent loss of life and damage to property – their 'impact'.

The focus is the significance of the level of development ('largely dependent') in determining the success or otherwise of management strategies. The answer to that question will depend on what is taken to constitute 'successful management' – prevention of damage to property, reduction in loss of life injury, reduction in insurance costs are all possible measures of success.

The framework chosen may be by:

1. Types of coping strategy/management – 'before, during and after events' do nothing'.
2. Levels of development – a developed world/developing world dichotomy with appropriate case-studies to illustrate.
3. Type of tectonic hazard – there are three main types – earthquakes, volcanoes and (secondary) tsunami – best approach would probably be case-study led.
4. Extent of disaster – the size of the event from overwhelming events that challenge any management system to mid-scale and minor events that pose fewer challenges to management systems.

Key analytical points:

- The varied nature of hazardous events needs covering with case studies to show both the extent of the threat and how it is dealt with.
- The success of management needs to be addressed – how does one measure success? Should this be in terms of property/personal injury and death or both.
- Most thoughtful appraisal would be to deconstruct the cliché of developed/developing world contrasts.
- An acknowledgment that large scale events might break the 'rules' of rich country/poor country.
- An acknowledgment that some developed world events might be so large as to overwhelm even the most sophisticated prediction, warning and mitigation coping strategies, e.g. Japanese tsunami.
- Success/failure is likely to be based on:
    1. Size of event – management may be ineffective if event is very large – Japanese tsunami, future Vesuvian eruption, supervolcanic eruption
    2. Location of event – remoteness, difficulty of access
    3. Timing of event – time of day/year
    4. Development/wealth issues that include:
        - quality of warning/prediction techniques
        - quality of prior planning, e.g. building design

- quality of rescue services.

So in conclusion:

- 'Largely dependent' is disputable.
- Size of the event is probably more significant.
- 'Success' through saving of life easier to interpret than loss of property.

Case studies used are likely to include:

1. California – Loma Prieta
2. Montserrat
3. Iceland - Eyjafjallajökull
4. Hawaii
5. Asian tsunami
6. Japanese tsunami
7. Kobe

QUESTION 2: Assess the view that the challenges of living in cold environments outweigh the opportunities.

- Explore the opportunities offered and challenges posed of living and working in cold environments.
- Research a range of contrasting relict and active cold environments where people live and work.

INDICATIVE CONTENT

The general topic is the range of challenges and opportunities that exist in cold environments.

The focus is the balance ('outweigh') between these challenges and opportunities but should also address opportunities for who, exactly?

The framework chosen may be by:

1. Types of challenges and opportunities including relief, climate, avalanches, surges, meltwater, etc. and opportunities including tourism, HEP water supply and resources.
2. A range of case studies of different cold environments – perhaps relic and active.

Key analytical points:

- The challenges are largely physical and traditionally considerable adaptation has been necessary to survive in these very low carrying-capacity regions.
- Historically the challenges have been greater than the opportunities which have restricted population growth and development in cold environments.
- The development of technology has led to the diminution of the constraints of cold environments so easier to exploit the 'opportunities'.
- However traditional adaptations have become increasingly incongruous in the modern world, e.g. Inuit culture.
- Increased connectivity with the outside world has led to the demographic decline of many cold environments, especially their traditional indigenous populations.
- New technologies are frequently capital intensive, e.g. oil industry, mining and offer relatively little to local populations
- Living – 'temporary' v 'permanent' residents.
- Profits from the 'opportunities' seldom stay local, e.g. Siberian gas-fields, Alaskan oil, tar-sands in Alberta.

So in conclusion:

- There are very considerable economic opportunities but these do not necessarily benefit local populations – so opportunities for who?
- For some the 'outweigh' argument has led to migration into easier and less challenging environments.

Case studies used are likely to include:

1. Upland glaciated regions of the UK (the Lake District) or Europe
2. Periglacial landscapes, e.g. Alaska
3. Greenland/Arctic
4. Siberia

QUESTION 3: 'Achieving food security, either nationally or locally, always requires international action.' Discuss.

● Explore the relative success of different local and international strategies in improving food security.
● Research a range of different locations to illustrate how different management strategies are used to address food insecurity.

INDICATIVE CONTENT

The general topic is the various means of achieving food security both in the hostile environments frequently found 'at the margins' **and elsewhere.**

The focus is the degree to which achieving food security through local action is possible without international intervention/action – the key word is 'always'.

The framework chosen may be by:

1. Contrasting local and international strategies to improve food security including different examples of farming practice that increases output per hectare; 'Green Revolution', use of genetically modified crops etc. – efforts of NGOs to fund and support local and national schemes.
2. A 'case-study' approach by area/region.

Key analytical points:

- Marginal areas/regions that have considerable physical and human challenges with inherently low carrying capacity.
- But there are parts of MEDC societies that can be defined as marginal too – food banks in US, Detroit Soup.
- Local schemes might be focused on low cost intermediate technology which might be more sustainable in the long-term.
- There are effective local schemes that can improve food security but most of them depend on an infrastructure that cannot be supplied locally.
- Many states with extensive regions at the margins have poor levels of governance and heavy dependency on outside agencies.
- International actions can help provide both the technical expertise, e.g. advice and training, but also aid projects that can help improve the infrastructure.
- Many 'Fair Trade' schemes require linkages with external markets that require international agencies, e.g. Ethiopian coffee production.
- Local political instability is a frequent cause of food insecurity and international action is often part of the 'solution' through aid packages but also direct intervention.
- In a globalised world local initiatives are only likely to survive and prosper with national and international co-operation.

So in conclusion:

- 'Always' is probably not tenable but not too far from reality.
- Although in the developed world local schemes probably have more impact.
- The short-term/long-term idea of 'always should also be clarified.
- The global economy makes local action increasingly impacted and influenced by outside agencies both negatively and positively.

Case studies used are likely to include:

1. The Sahel
2. Organic farming
3. 'Detroit Soup' and similar

QUESTION 4: Assess the view that cultural attitudes towards the environment inevitably change as societies develop.

● Explore the differences in the relationship between humans and nature and the landscape, and the values that affect our use of the environment.
● Research a range of different cultures that have contrasting attitudes to, and relationships with, the environment.

INDICATIVE CONTENT

The general topic is the variation of cultural attitudes to the environment including the protection of that environment from human impacts(s).

The focus is whether or not there is a relationship between cultural attitudes to the environment and development, specifically that with increasing levels of development concerns about the environment increase/change and whether these changes are 'inevitable'.

The framework chosen may be by:

1. Case studies of different societies/places with contrasting levels of development.
2. Contrasting attitudes towards sustainability.

Key analytical points:

- The lowest eco-footprints are found in the least developed countries.
- Industrialisation inevitably leads to increasing environmental damage (environmental Kuznets curve) which will impact on changing attitudes.
- Anthropocentric attitudes were/are necessary to support the emergence of industrial capitalism.
- But also changing attitudes to the environment emerge with the growth of conservation movements – the 'green' movement.
- Rachel Carson's 'Silent Spring' marked a change in attitudes to environmental damage in the developed world with a recognition of the negative impact of human action on species and ecosystems.
- The growth of National parks and the Sierra movement in the US was a significant development in changing cultural attitudes.
- Recycling movements can be seen by some as tokenism in consumer societies.
- There are clear tensions between consumer capitalism and environmental degradation.
- Sustainability is defined differently at different periods with the stress on 'economic'.
- The political agenda in all developed societies prioritises economic growth although many question its impact on the environment.
- 'Economic' sustainability is stressed in some places and by some groups whilst 'environmental' sustainability is stressed elsewhere.
- There are significant differences within societies – Amish v US fundamental Christianity.
- There are significant differences according to the economic 'health' of a society with the environment being higher on the agenda when economic growth is strong.

So in summary:

- There is a relationship but it is complex and 'value' might be emotional/cultural but is rarely turned into specific action.
- Positions of societies that are still predominantly 'hunter-gatherer' had/possibly still have greater empathy or place value on environment. Now under massive pressure .
- In general cultural attitudes to the environment become more overt as economic growth takes place.
- There is a great deal of variation within societies making definitive conclusions tentative – so 'inevitable' is probably right but needs qualifying.

Case studies used are likely to include:

1. US National Parks
2. Iceland
3. London
4. Tuvalu
5. Amish country
6. Rural- urban contrasts
7. Tribal societies in Papua New Guinea, Aboriginal, certain Amazonia Tribes

Changing view in China over the last 10 to 20 years (bullet 3 in the specification). Even in China increasing concern within certain groups.

QUESTION 5: 'Health risks are increasing in the more developed world but decreasing in the developing world'. Discuss.

● Explore the different causes of health risk, including pollution and how they vary according to economic standards of living.
● Research a variety of locations across the development spectrum to show how far health risks change over time.

INDICATIVE CONTENT

The general topic is the relationship between socio-economic status (development) and health risk.

The focus of this title is the degree to which health risks are increasing in the developed world whilst decreasing in the developing world.

The framework chosen may be by:

1. Different causes of health risk including environmental factors, socio-economic status and geographic factors.
2. Models of health risk (ETM, Kuznets).
3. By disease and health risk, e.g. malaria, TB, obesity, pollution.
4. By place using case-studies to carry the ideas.

Key analytical points:

- Health risk can be expressed in two dimensions – geographic extent and threat to individuals so both breadth and depth of risk.
- The best, indirect, measure is probably life expectancy.
- Much depends on the type of disease.
- Major killing diseases are largely determined by poverty and limited access to basics such as clean water and sanitation.
- Developed and developing need deconstructing carefully - 'socio-economic status' is a phrase that needs careful attention– some students will include, reasonably enough, health risks associated with quality of built environment, sewage disposal and lack of access to freshwater.
- These latter causes are closely related to levels of development and the availability of inoculation.
- Poorer countries have lower life expectancy but rapid improvements are being made in many areas as development brings improvements to the environment.
- Poorer people have lower life expectancy within societies making 'national' generalisations and mean unreliable.
- (Growing) inequalities within developed societies and the 'inverse care law' make national averages deeply unreliable.
- Global campaigns to address pandemics and diseases of poverty have had a significant impact – malaria, polio.
- Some diseases (obesity) may be a product of development suggesting an inverse relationship between development and health risk.
- Cancer is commonly associated with more developed societies and perhaps related to the environmental impacts of development.

- Air quality in Chinese cities is an obvious health risk which is a product of development, that is both broad and potentially deep (too early to tell about death rates).
- But the hazards of cooking with wood in a confined space in Indian villages is also serious.

So in summary:

- The statement is hard to support although life expectancy is rising faster in many (but not all) developing countries than it is in the developed world.
- Variations within countries are very considerable and related to deprivation and inequalities.

Case studies used are likely to include:

1. China's polluted cities
2. Indian villages
3. Malaria in Africa
4. Obesity in Europe/USA – Increasingly in China's middle class
5. Cancer rates in the developed world

QUESTION 6: Assess the view that with successful management, tourism is increasingly beneficial to rural areas.

● Explore the positive and negative impacts that leisure activities and tourism have on rural areas.
● Research a range of contrasting rural locations to show how management can influence the balance between benefits and costs from leisure and tourism.

INDICATIVE CONTENT

The general topic is the impact of tourism (and associated leisure activities) on rural areas.

The focus is the contention that the impacts of tourism increasingly do more good than harm and the keywords to be deconstructed are 'increasingly beneficial' which can of course be interpreted from an economic, social and environmental point of view.

The framework chosen may be by:

1. Contrasting type of rural landscapes – a range of case studies of different landscapes showing how some are more likely to be damaged than others.
2. Type of tourism – the pressure exerted rather than the vulnerability of the landscape.
3. Type/level of impact using degree of impact as the controlling variable.
4. Types of management – level of damage (to the environment) may be controlled by the sensitivity of management.
5. Assessment of 'more harm than good' – environment v socio-economic.

Key analytical points:

- Impact can be subdivided into environmental, economic and social impacts some of which will/can be harmful, some positive.
- There may be tensions between environmental protection and economic gains from tourism.
- Mass tourism has significant negative environmental impacts in coastal areas (Butler model) although it brings economic benefits.
- However economic benefits may not stay 'local' as outside investors profit from the exploitation of rural landscapes for tourism and leisure, e.g. theme parks.
- Economic benefits might allow more investment in environmental protection, e.g. Machu Picchu.
- Social impacts may flow from the recycling of economic benefits in terms of improvements in rural infrastructure and levels of health and education.
- 'Enclave' tourism in developing countries may exploit the natural environment, e.g. coral reefs but create long term damage.
- The growth of ecotourism is designed to mitigate the environmental impact of tourism and also to ensure that the local economy benefits.
- Maintaining rural populations through the development of sustainable tourism, e.g. Husavik (Iceland) can arrest rural depopulation – a social benefit.

So in summary:

- There is a case to be made here but the key question is benefits for who exactly?
- Environments will always be altered by tourism but the judgment about whether it be for good or ill is complex.

Case studies used are likely to include:

1. Alaska
2. Machu Picchu
3. Yorkshire moors
4. Galapagos
5. Antarctica