

Mark Scheme (Results) Summer 2007

GCE

GCE Geography (6464) Paper 1

6464/01 June 2007

1.a) Rainfall = rain gauge, fixed in the ground, emptied daily and measured in a calibrated container.

Temperature = thermometer housed in Stevenson Screen, read at same time each day. Max/min measured with a Six's thermometer, re-set pins with magnet each day.

NB Candidates might refer to electronic stations with data loggers. However, they should still know the instruments used.

5-4	Outlining of methods for both variables provided.
3-1	Aware of the instruments used or outlining of methods for one variable.

b)

- "Explain" requires reasons for the weather phenomena
- "pressure systems" include depressions and anticyclones, as well as ridges and troughs
- "weather" includes precipitation, temperature, wind, cloud etc
- Focus should be on the British Isles
- Good answers should recognise spatial and temporal variations in the weather experienced

Level 5 (20-16 marks)	Clear explanation of a range of weather phenomena. Both high and low pressure systems should be addressed. A range of scales, both spatial and temporal is likely to be addressed. Supporting evidence/data provided.
Level 4 (15-12 marks)	A broad explanation of different weather conditions is likely, including wind as well as temperature and rainfall. Both high and low pressure systems should be considered, although this may be at a rather generalised level, and not necessarily in a balanced way. Evidence may be limited.
Level 3 (11-8 marks)	Answers may be based on either high or low pressure systems. Explanations are limited in depth. The range of weather characteristics maybe narrow. Broad, general assertions are made, unsupported with evidence.
Level 2 (7-4 marks)	Some descriptive knowledge of weather conditions under high and/or low pressure systems. Lack of valid explanation.
Level 1 (3-1 marks)	Simple description of either high or low pressure weather at a very general and basic level. Lack of explanation offered.

2.a)

Inter-tropical convergence zone = the position close to the equator when winds from the north and south (trade winds) converge. The position changes due to shifts in the position of the overhead sun. This causes locations of intense heating and convectional uplift to vary and so the area of wind convergence into the resulting low pressure belt varies.

5-4	Developed answer making linkages between the position of the overhead sun and the convergence of the winds.
3-1	Basic answer recognising that it involves converging winds and/or rising air OR some idea of shifting position.

b)

- "Examine" requires reasons for the pattern to be explicitly linked to the pattern.
- "factors" are the controlling forces: pressure gradient, Coriolis, friction....
- Candidates may also refer to land/sea differences, El Nino, ocean currents....
- Description of the pattern is not required per se, as the resource provides this. However, linkages should be explicit.
- Seasonal differences should be appreciated.

Level 5 (20-16 marks)	Clear explanation of a good range of factors. The pattern of surface winds is explicitly considered and effectively linked to the forces involved. Comments are offered which show an awareness of seasonal variation.
Level 4 (15-12 marks)	Sound explanation of a reasonable range of factors, probably based on pressure gradient force and changing position of the I.T.C.Z. There should be some clear links between the factors and the pattern, although these will not always be fully developed.
Level 3 (11-8 marks)	Attempts explanation; probably based on a single factor which is most likely to be pressure gradient force. Limited in both range and depth with linkages implicit rather than explicit.
Level 2 (7-4 marks)	Answer shows some direct relevance to the question but likely to be descriptive and probably based on the extraction of some information from the resource. Some knowledge of some factors.
Level 1 (3-1 marks)	Vague answer, largely unrelated to the topic in question. May refer to global patterns in climate or weather variables other than surface winds.

3.a) Temperature characteristics = The thermal gradients of both types involve increasing temperature with increasing depth. However, in polar glaciers the basal temperature does not reach pressure melting point, whereas it does in temperate glaciers. Also, there are differences in surface temperatures with polar glaciers always below zero throughout the year, whilst temperate glaciers are usually above zero in "summer".

5-4	Developed answer with detail of at least 2 of surface, basal and internal differences.
3-1	Basic answer showing some awareness of basal, surface or internal differences or details of one, or general overview.

b)

- "Compare" requires similarities to be considered e.g. they both move by internal flow
- "contrast" requires the differences to be considered e.g. polar move slower, polar do not experience basal movements...
- "mechanisms" refers to basal movements such as slippage and creep, internal movements such as laminar flow and ice crystal orientation
- "rates" requires the speed of movements to be considered; good answers should provide evidence
- Very good answers may note that some glaciers are polythermal and that rates vary over time i.e. short-term/seasonal and long-term advance/retreat

Level 5 (20-16 marks)	Comparison and contrast both made with mechanisms and rates both addressed. Evidence provided in the form of data from named examples. May provide additional comments about variations within glaciers.
Level 4 (15-12 marks)	Emphasis may be on contrasts and mechanisms may not be dealt with in full depth. Some comments about similarities also likely. Rates explicitly addressed. Named examples may be provided but specific data limited or absent.
Level 3 (11-8 marks)	Deals with both types but not necessarily comparing and contrasting. Broad comments about basal/internal movements but without detail of specific mechanisms. Examples may be regional rather than named glaciers.
Level 2 (7-4 marks)	Shows some awareness that there are differences, perhaps limited to generalised views about temperate glaciers moving faster than polar glaciers.
Level 1 (3-1 marks)	Probably vague, generalised answers relating to advance and retreat of glaciers and not focusing on mechanisms or types.

4.a) Glacial (till) deposits are usually large, angular, unsorted and unstratified. Fluvio-glacial (outwash) are typically smaller, rounded, sorted and stratified.

5-4	Developed answer with a reasonable range of characteristics identified and differences explicit. Meanings of terms used is clear.
3-1	Basic answer showing some awareness of the main characteristics, or a list of descriptive terms.

b)

- o "Explain" requires processes to be explicitly linked to the landforms
- o "glacial deposition" refers to the role of the ice, not meltwater
- o impact on human activity should be commented on e.g. agriculture, transport
- o appropriate landforms include various types of moraine, drumlins, erratics, crag and tail.....

Level 5 (20-16 marks)	Clear description and accurate explanation of a good range of landforms. Detailed process understanding. Likely to use diagrams and named examples to support the answer. Meaningful comments about human activity.
Level 4 (15-12 marks)	Clear description and accurate explanation of a reasonable range of landforms. Processes involved are securely grasped. May use diagrams and examples to support the answer. Brief but valid comment about human activity.
Level 3 (11-8 marks)	Sound description and explanation of the formation of a narrow range of appropriate landforms. May have some simplistic diagrams or named examples. Process understanding not entirely secure. Generalised comment about human activity.
Level 2 (7-4 marks)	Basic description of a narrow range of appropriate landforms. Possibly a list of types of moraine. Little, if any, effective explanation. May become sidetracked onto human activity.
Level 1 (3-1 marks)	Vague, generalised description of landforms, possibly not glacial or not depositional. Insubstantial comment about human activity or none at all.

5.a) Plant succession refers to the sequential changes that take place in a plant community as it progresses from initial colonisers to the climax community. It may be primary (from a bare, inorganic surface) or secondary (from a previously vegetated surface). The climax may be controlled by climate or by a limiting factor such as soil (edaphic climax) or human activity (plagioclimax).

5-4	Developed answer with clear grasp of the concept.
3-1	Basic answer showing some awareness of change in plant communities, over time at the top end.

b)

- "Assess the importance" should provoke comment and appreciation that human activity may/may not be particularly significant compared to other factors
- other factors include climate, soil development, competition, co-existence...
- "human activity" should be explicitly linked to succession i.e. impact not just activity
- exemplification via located examples would be helpful

Level 5 (20-16 marks)	Good range and depth of human influences are explicitly explained. Expect references to different degrees of influence, possibly placed in a temporal as well as a spatial context. The influence and importance of other factors should be explicitly, albeit briefly, considered. Located detail is used to support argument.
Level 4 (15-12 marks)	A good range of human activity is well considered and cause-effect links will be secure, although not always in full depth. Examples will be appropriate and effectively used to support explanation. At the top end references to other influences should also be made. Some spatial variation may be implied.
Level 3 (11-8 marks)	The concept of succession is understood and appropriate human activity is identified. Cause-effect links may sometimes be weak and sometime implicit rather than explicit. Examples are likely to be used and they will be appropriate but limited in depth and detail. Emphasis likely to be on damage/restriction of development.
Level 2 (7-4 marks)	Reasonable description of a range of activity but lacking explicit links to the concept of succession. Examples, if given, will be vague and without convincing locational detail.
Level 1 (3-1 marks)	Little, if any, accurate factual knowledge. Vague, generalised statements about a very limited range of activity, unrelated to succession. Alternatively a general description of a plant community.

6.a) Distribution = where the biomes are located. Biomes generally occur in broad belts or bands around the earth.

Functioning = what they do. This is mainly related to the energy flows and mineral-nutrient cycling of the biome.

5-4	Developed answer with both terms fully addressed.
3-1	Basic answer showing some awareness of both terms, or full detail of one.

NB Candidates are likely to develop functioning more than distribution. Give full reward to succinct, accurate statements of meaning.

b)

- "Examine" requires description, explanation and comment
- "factors" include climate, soil, relief, human activity.....
- basic comments might relate to the dominance of climate
- higher level comments might relate to variations of the influence of factors within the biome, changing influences over time

Level 5 (20-16 marks)	Accurate description and a good depth of explanation of both distribution and functioning in one biomes. A good range of factors fully considered. High level comments made. Evidence is detailed and used to support argument.
Level 4 (15-12 marks)	Clear description and sound depth of explanation of both distribution and functioning in one type of biome but not necessarily in a balanced way. Focus likely to be on climate, although at least one other factor should be considered, albeit briefly. Some evidence provided.
Level 3 (11-8 marks)	Sound description of the distribution and the functioning, although the latter may not include both energy flow and mineral-nutrient cycling. Climate is likely to be the focus of explanations, which may only be implicit rather than explicit. Limited data/detail.
Level 2 (7-4 marks)	Some relevant factual knowledge, but not well focused on the question. May provide a reasonable description of the characteristics of one or more biomes, but not explicitly linked to distribution or functioning. Lack of explanation.
Level 1 (3-1 marks)	Limited factual knowledge and largely irrelevant. May offer vague generalisations about one or more ecosystems.