



Pearson

Mark Scheme (Results)

Summer 2018

International GCSE Geography  
(4GE0/01)

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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.

### **All examiners need to note this section on applying levelled marking.**

#### **Placing a mark within a level mark band**

The guidance is to help with the rewarding of responses to the 6- and 9-mark items both with judging the correct level mark band and with arriving at a correct mark once the appropriate level mark band has been determined.

Judging the correct level mark band:

Level 1 (L1) responses will be valid but sketchy and show only basic awareness of the point of the question e.g. simple random points.

Level 3 (L3) responses will be developed and considered with range and/or depth e.g. good use of examples and facts, and address the command word well.

Level 2 (L2) responses will show an attempt to address the command word with some development of the answer but will remain imbalanced (skewed) or restricted/partial/limited.

Differentiating within a level mark band:

- 2 mark bands (the 6-mark "Explain" items) where L1- = 1 mark; L1+ = 2 marks; L2- = 3 marks; L2+ = 4 marks; L3- = 5 marks; L3+ = 6 marks.

After judging the level start with the presumption that the mark will be the higher of the two (i.e. 2 or 4 or 6). Only drop down to the lower mark where the response is not well supported content-wise or there are explanatory doubts. The lower mark is for where the level descriptor is only "just" met !

- 3 mark bands (the 9-mark "Discuss" items) where:

L1- = 1 mark

L1 = 2 marks

L1+ = 3 marks

L2- = 4 marks

L2 = 5 marks

L2+ = 6 marks

L3- = 7 marks

L3 = 8 marks

L3+ = 9 marks

After judging the level start with the presumption that the mark will be the middle of the three (2 or 5 or 8). STET this mid-mark unless the response is:

1. well supported and strong in terms of the level descriptor (L1+ and L2+) or in the case of L3 the "discuss" command word is well-addressed i.e. the response argues-weighs up-evaluates well then move to the top of the level mark band (L3+).
2. qualitative doubt and the answer is only "just in" the level descriptor then drop down to the lower mark (i.e. L1-, L2- or L3-).

## Section A: The natural environment and people

### Question 1 – River environments

Question Number	Answer	Mark
1(a)(i) Type 2 item	Accept any two correct, observable and distinctive changes e.g. more channels (1); some channels longer (1); some dry channels now wet (1); main channel now reaches southern watershed/ sea (1); drainage density increase (1) now west/ south west direction (1) ... Avoid double crediting same feature e.g. more channels and channels not there earlier = 1 mark only.. Expect distinctiveness.	2(1+1)

Question Number	Answer	Mark
1(a)(ii) Type 3 item	Increase or equivalent (1)	1

Question Number	Answer	Mark
1(a)(ii) Type 4 item	Key : B southerly A, C and D are clearly incorrect as directions given the N. arrow and the direction of flow shown.	1

Question Number	Answer	Mark
1(b)(i) Type 2 item	Full and accurate definition = 2 marks e.g. downslope movement of surface materials (1) due to gravity (1). Statement with some hint of definition = 1 mark e.g. soil creeping downhill (1); loose ground slipping (1) ...	2(1+1)

Question Number	Answer	Mark
1(b)(ii) Type 1 item	1 mark per valid and distinctive factor stated e.g. slope angle (1); vegetation (1); rock type (1); weather (1); ... 2 <sup>nd</sup> mark for development as to how it affects downslope movement e.g. <ul style="list-style-type: none"> <li>• slope angle(1)&gt; all slopes of more than 5 degrees experience mass movement (1)</li> <li>• vegetation (1) &gt; binds together soil limiting mass movement (1)</li> <li>• rock type (1)&gt; more easily weathered rocks produce more loose material liable to movement(1)</li> <li>• weather (1)&gt; rainfall lubricates and speeds up mass movement, i.e wind is acceptable(1)</li> <li>• Weathering processes i.e. freeze thaw (1)</li> </ul>	4(1+1)+(1+1)

Question Number		Indicative content
<b>1(c)</b> <b>Type 1 item</b>		<p>The characteristics sought are inputs, circulation, transfers/flows, stores and outputs. Acceptable responses can refer to these characteristics in the context of either the closed system of the global cycle or the open system of the cycle at a smaller spatial scale.</p> <p>The input is precipitation, either rainfall or snowfall. The main output is river discharge though evapotranspiration is also an output. Within the cycle water flows as liquid from store to store. Transfers/flows include run-off/overland flow, infiltration, percolation, groundwater flow and throughflow. The stores are on land i.e. rivers, lakes, ice, soil, vegetation, groundwater as well as in the oceans and the atmosphere. A fully annotated diagram showing key stores and flows ... worthy of Level 3. (Full access to marks can be achieved without a diagram).</p> <p>Accept water's changing state i.e. liquid, solid and gas as a valid characteristic.</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect basic statements or simple response about water circulating between land, ocean and atmosphere or a skewed response containing random points about a few aspects of the cycle.
<b>Level 2</b>	3-4	Expect an attempt to explain how the cycle works as a system. Expect some reference to input, transfers and output. May be rather superficial but some reference to the concept of flows/transfers from stage to stage in a partly explanatory manner.
<b>Level 3</b>	5-6	Expect some level of explanation of the cycle addressing the five key characteristics above. There should be a strong sense of system with identified transfers, identified stores and unending water circulation.

Question Number		Indicative content
1(d) Type 1 item		<p>Expect candidates to refer to two methods that fall into one or both of the following basic approaches :</p> <ul style="list-style-type: none"> <li>• hard engineering defences (built structures) e.g. dams; channel straightening; levees; diversion spillways ....</li> <li>• soft engineering defences (working with natural processes) e.g. smarter land use management; upper course wetlands; alteration of urban surfaces; afforestation ....</li> </ul> <p>Different methods can be two hard, two soft or one from each type.</p> <p>The question is one of how effectively two methods actually work as controls of flooding i.e. how they should control river floods and whether they actually do so.</p> <p>Where candidates use a case study of an integrated flood defence scheme which incorporates a number of methods e.g. the Mississippi with its dams, spillways, afforestation ... this fully meets the scope of the question. In this case, evaluation may be schematic rather than method by method and acceptable for a Level 3 award.</p> <p>If candidate refers to coastal flooding control methods, cap at Level 2.</p>
Level	Mark	Descriptor
Level 1	1-3	Expect the identification of one method with some basic comments on their role in flood control.
Level 2	4-6	Expect some explanatory reference to the workings of two different methods (or one integrated defence scheme) and how flood management is possible. Expect some hint of effectiveness assessment at top of level. If only one method is explained in depth, max 5 marks.
Level 3	7-9	Expect answer to cover both explanation and evaluation of two valid defence schemes. Good answers at mid-level and above will evaluate effectiveness of two different methods (or one integrated defence scheme), perhaps in a comparative way. Effectiveness considerations to be justified for max marks.

### Question 2 – Coastal environments

Question Number	Answer	Mark
2 (a)(i) Type 4 item	Key : C Options A, B and D cannot be correct with lowered sea level (emergence) in diagram B. Position 1 (distractor A) is the initial shoreline from diagram A. Position 2 (distractor B) is not where land meets sea i.e. a shoreline. Position 4 (distractor D) is also not a shoreline but a sea location. Knowing that a shoreline is where land meets sea position is clearly visible at point 3 in diagram B and can be the only correct response.	1

Question Number	Answer	Mark
2 (a)(ii) Type 3 item	C (rise in sea level)	1

Question Number	Answer	Mark
2 (a)(iii) Type 2 item	Credit any two reasonable impacts e.g. creates new land/new coastal plain emerges from below sea (1); seaward migration of shoreline (1); river erosion (1); sub-aerial erosion (1); old shoreline stranded above sea level (1); emergent landforms created (1), Impacts on coastal ecosystems (1), impact on human activities (1) ...	2(1+1)

Question Number	Answer	Mark
2(b)(i) Type 2 item	Expect the two following elements of a full and accurate definition for 2 marks i.e. community of plants and animals/ collection of organisms (1) interacting with their environment (1). Award 1 mark for incomplete definitions e.g. interrelationships in nature (1); the effects of non-living environment (1); how plants are affected by soil (1).	2(1+1)

Question Number	Answer	Mark
2(b)(ii) Type 1 item	Valid physical factors can be broad global scale influences e.g. configuration of the coastline (1); climate/latitude (1)... but preferably be more specific local scale influences, perhaps ecosystem-specific e.g. sea temperature (1); water depth (1); light (1); salinity (1); wave action (1); sand supply (1); prevailing wind (1); bay formation (1) ...	4(1+1)+(1+1)



	<p>Must be physical i.e. natural influences not human activities !</p> <p>Award 1 mark for each valid physical factor identified. 2<sup>nd</sup> mark in each case for outlining its role as an influence on distribution e.g.</p> <ul style="list-style-type: none"> <li>• configuration of the coastline (1) &gt; salt marshes develop in sheltered locations (1) &gt; bayheads and estuaries (1)</li> <li>• sand supply (1) &gt; dunes develop where beach wide and large quantities of sand (1)</li> <li>• sea temperature (1) &gt; coral reefs grow best between 23 and 25 degrees C.</li> <li>• slope or gradient (1) &gt; steep gradients reduce chance of salt marsh or mangrove development</li> </ul> <p>Coral reef, mangrove, sand dune and salt marsh influences are likely to be most familiar to the candidates.</p>	
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Question Number		Indicative content
<b>2(c)</b>	<b>Type 1 item</b>	<p>Conflicts of interest occur along coastlines between :</p> <ul style="list-style-type: none"> <li>• development i.e. new building including transport links and other natural landscape changes, and</li> <li>• conservation i.e. protection of the status quo i.e. scenery, historic buildings, plant/animal habitats ..</li> </ul> <p>The general point that can be made is that some hold that the latter have amenity and value greater than that brought by new developments; others disagree, hence, conflict. In more specific terms, examples that candidates might write about include:</p> <ul style="list-style-type: none"> <li>• threats to coastal ecosystems from tourism, industrialisation, agriculture and deforestation</li> <li>• a fieldwork study of a stretch of coastline where conflicts of interest occur e.g. Southampton Water</li> <li>• actual coastal stakeholders in conflict e.g. local residents v. second home owners; upmarket hotels v. port-side services and terminals; tourists v. fishermen; tourists v. wildlife lovers ...</li> </ul> <p>In all cases good responses will offer the clear reasoning for conflict e.g. coastal ecosystems need conservation rather than threats from development because of their value to future generations.....; prosperous urban dwellers purchase coastal cottages for weekends/holidays whereas local residents object to the development of second homes which deny them local housing ..</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect some basic points about coastal conflict stated. Superficial response that might merely identify natural coastline threats, drivers for conflict or coastal stakeholders.
<b>Level 2</b>	3-4	Expect an attempt to explain the nature at least one coastal conflict. Answers will be skewed and only range or depth

		reasonably well done. There will be some reasoning behind coastal conflict.
<b>Level 3</b>	5-6	Expect a well-developed consideration of at least two conflicts which clearly focuses on the actual reasons for the opposing standpoints taken. The terms, development and conservation need to be clearly understood as part of the rationale behind the conflicts. May offer specific locational coastal knowledge, case study or fieldwork.

Question Number	Indicative content	
<b>2 (d)</b> <b>Type 1 item</b>	<p>Knowledge and understanding of two geologically contrasting coastlines is a required case study. It is likely that candidates will approach their answer from one or both of the following perspectives :</p> <ul style="list-style-type: none"> <li>• resistant hard rock/upland coastlines v. soft rock/lowland coastlines e.g. headlands and bays; high steep cliffs v. flatter depositional stretches</li> <li>• different geological structure e.g. concordant coastline (strata parallel to shore) v. discordant coastline (strata at right angles to shore)</li> </ul> <p>Responses should deal with landforms (including coastal shape and characteristics) and the role of geology in their formation. Some process will be necessary e.g. resistance to wave action; looser materials subject to mass movement ...</p> <p>The evaluation required in “discuss the extent” items will come in the form of assessing the impact of geology :</p> <ul style="list-style-type: none"> <li>• coastline v. coastline</li> <li>• v. other factors influencing coastal landforms i.e. vegetation, human activities, sea level changes ...</li> </ul> <p>Good responses do call for candidates to identify two coastlines of different geology. Limit responses where geological contrast not evident to Level 2.</p>	
<b>Level</b>	<b>Mark</b>	<b>Descriptor</b>
<b>Level 1</b>	1-3	Expect a basic awareness of the role of geology on coastal landforms with a few simple points stated. Answer likely to be skewed, perhaps towards one stretch of coastline.
<b>Level 2</b>	4-6	Expect some consideration/development of key geological influences. Clear but restricted and unbalanced in terms of depth (i.e. geology and process interplay) and/or breadth (i.e. both stretches of contrasting coastline).
<b>Level 3</b>	7-9	Expect coverage in reasonable depth and breadth. Shows good understanding of the geological influence on two contrasting stretches of coastline. May offer place examples/case study material. Offers some attempt to evaluate extent of geology’s impact especially, relative importance of geological input along two coastlines.

### Question 3 – Hazardous environments

Question Number	Answer	Mark
3 (a)(i) Type 2 item	Credit up to two of the following as either one-word or lengthier statements: height (1); width (1); slope (1) or combinations of such e.g. width at base (1); width at peak (1), width/depth of crater (1)...	2(1+1)

Question Number	Answer	Mark
3 (a)(ii) Type 4 item	Key : A fast flowing lava eruption B, C and D are distractors. Shield volcanoes are produced by fast flowing, runny lava. Explosive eruptions (distractor B) tend to leave a caldera. Ash eruptions (distractor C) are more associated with cinder cones. Sticky, slow flowing lava (distractor D) tends to produce convex-sided domes.	1

Question Number	Answer	Mark
3 (a)(iii) Type 3 item	Composite (1) volcano	1

Question Number	Answer	Mark
3(b)(i) Type 2 item	Award 2 marks for full accurate definition e.g. actual death/damage/destruction (1) from a non-human/ physical event (1). Look to credit “natural” clarified (1) and “disaster” clarified (1). Part definitions e.g. earthquake damage(1); actual natural hazard event disaster (1) = 1 mark	2 (1+1)

Question Number	Answer	Mark
3(b)(ii) Type 1 item	Credit each valid and distinctive factor identified with 1 mark with 2nd mark available where factor developed into a full explanatory reason e.g. <ul style="list-style-type: none"> <li>• birth place (1)&gt; emotionally attached (1)</li> <li>• lack of income (1) to afford re-location costs (1)</li> <li>• traditional to cope (1)&gt; older generations have stayed (1)</li> <li>• risk worthwhile (1)&gt; farming productive (1)</li> <li>• risk awareness (1)&gt; stay put because low awareness(1).</li> <li>• Personal choice (1)&gt; i.e. natural beauty, friends/ family (1).</li> <li>• Geothermal energy (1) &gt;harness electricity</li> </ul> Accept both negative factors e.g. inertia and positive factors e.g. attractive landscape; cultural familiarity...	4 (1+1)+(1+1)

Question	Indicative content
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Number		
<b>3 (c) Type 1 item</b>		<p>The methods of monitoring i.e. observing weather conditions have benefited from modern technological advances. Traditional weather stations on land required manual data collection. New technology allows more monitoring to take place e.g. constantly and remotely from a distance without direct human contact e.g.</p> <ul style="list-style-type: none"> <li>• orbiting and stationary satellites collect and transmit upper air temperatures, wind speed ...</li> <li>• radiosondes (balloon-borne instruments) transmit upper air temperatures, humidity, wind speed ...</li> <li>• ocean buoys and aircraft carry equipment that automatically transmits data</li> <li>• weather radars record rainfall intensity and duration</li> <li>• some land weather stations are now fully automatic</li> <li>• there is a worldwide weather data communications network</li> </ul> <p>The question is about remote-sensing and automatic transmission of data rather than computer data analysis and forecasting. Reference to this modern methodology implies change and is sufficient for access to the full range of marks.</p> <p>Some responses may be restrictive in that they deal with traditional instrumentation e.g. barometers, rain gauges ... or modern hand-held digital instruments e.g. kestrels. Such responses fail to address remote monitoring. Responses restricted in these two ways to analysis/forecasting or traditional/hand-held instruments limited to Level 2 marks.</p> <p>The Great UK Storm of Oct 1987 might be taken as a time-frame re “recency;” methods were significantly different then than now.</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect some simple, basic statements about weather instruments either traditional or modern automatic. Likely to be descriptive and pay little or no explicit attention to change.
<b>Level 2</b>	3-4	Expect an attempt to explain methods of weather monitoring. Those methods may include the role of new technology in remote monitoring e.g. satellites... or reference entirely to more traditional ones e.g. Stevenson Screen.. Responses will be partial/unbalanced, may be restricted by referring to forecasting and/or limited technology and pay little or no explicit attention to change.
<b>Level 3</b>	5-6	Expect some explanation of monitoring the weather and how automatic and remote-sensing technology has enabled constant monitoring and a range of locations to be used e.g. upper atmosphere, oceans, wildernesses.... Reference to a number technologies e.g. satellites, communication networks ...Response needs to show a degree of balance but need not explicitly focus on change.

Question Number		Indicative content
3(d) Type 1 item		<p>The item requires candidates to have some understanding of the meaning of mitigation i.e. to improve a situation by minimising its impact without removing the cause. The response should address mitigating the consequences of hazard events so that areas cope better.</p> <p>Candidates should have case study knowledge of tectonic event management or of river or coastal flood management. They might choose one of the three types of hazard event and evaluate how event management can mitigate consequences. Successful management mitigates the consequences and impact; it enables people to learn to live with the hazard by knowing how to act before, during and after a hazard event. Pro-active management enables areas to cope better during and after an event and possibly prevent/minimise disaster.</p> <p>Good answers should refer to the difficulties of doing this i.e. of risk assessment, prediction, preparation/adjustment, recovery.... and of how/to what extent actions are effective in mitigating consequences.</p> <p>A key part of many answers should be to look at the pro-active and reactive management, for example, for:</p> <ol style="list-style-type: none"> <li>1. a named tectonic event - earthquake preparation involves designing non-collapsible buildings; strengthening railways and roads; stocks of emergency supplies ... <ul style="list-style-type: none"> <li>- volcanic eruption preparation involves evacuation plans, lava diversion channels, planning controls on building location...</li> </ul> </li> <li>2. coastal flooding preparation involves building sea walls, coastal land use planning, rip-rap and breakwaters...</li> <li>3. river flooding preparation involves prevention such as land use planning (e.g. afforestation, minimising concrete surfaces, dam construction ...) and control (e.g. channel dredging and straightening, spillways, flood walls, levees...).</li> </ol> <p>Whichever hazard type is chosen there will be reference to common generic ideas, including short-term and long-term, emergency aid/disaster relief, defences, shelters, education, early warning/prediction/evacuation, risk assessment, review and adjustment and rebuilding.</p> <p>Difficulties may be less in HICs with their higher levels of development, more and better quality management, better technology and infrastructure, greater governance...</p> <p>The question is not looking for tropical storm impact or management answers but where given limit to Level 2.</p>
Level	Mark	Descriptor
Level 1	1-3	Expect simple statements about how the identified hazard event is

		managed, especially prediction and preparation. Likely to be generic and stated only.
<b>Level 2</b>	4-6	Expect some indication of how management practices employed mitigates impact. Idea of preparation and pro-active management needs to be present. At bottom of level focus on identifying means by which managers seek to mitigate consequences. Likely to be some assessment of “extent to which.”
<b>Level 3</b>	7-9	Expect a clear sense of case-study style material offered and used to address management as a mitigator of disastrous consequences. At top of level management difficulties and the command word (discuss = evaluate) addressed with direct assessment of “extent to which” assessed. Candidates offer responses assessing whether management is successful and how successful in mitigating outcomes.

## Section B People and their environments

### Question 4 – Economic activity and energy

Question Number	Answer	Mark
4(a)(i) Type 4 item	Key : B energy from non-polluting and inexhaustible sources  Rationale: clean refers to non-polluting and renewable describes inexhaustible supply. Hence, A (“polluting”), C (“exhaustible”) and D (“polluting and exhaustible”) do not match the definition and are distractors.	1

Question Number	Answer	Mark
4(a)(ii) Type 3 item	A (Wind)	1

Question Number	Answer	Mark
4(a)(iii) Type 2 item	Award 1 mark for correct naming of one of other three sources (i.e. not wind) shown with 2 <sup>nd</sup> mark for indicating why not available as a generating source all the time or everywhere. Credit any valid reason e.g. Solar (1) - insufficient sun in many non-tropical locations (1); sunshine variable everywhere (1)... HEP (water) (1) - river discharge varies between seasons (1); rivers rare in some regions (1)... Geothermal (1) - need special geological environment (1); shallow crust needed (1); close to plate margins (1)...	2(1+1)

Question Number	Answer	Mark
4(b)(i) Type 1 item	2 marks available for full and accurate definition e.g. decline in importance of manufacturing/secondary industry or fall in % employed in manufacturing (1) in an industrialised country (1) or leading to economic decline of a whole area (1). Allow 1 mark for partial answers along right lines e.g. factories close (1); less heavy industry (1)....	2(1+1)

Question Number	Answer	Mark
4(b)(ii) Type 1 item	Award 1 mark to each valid and distinctive factor identified e.g. cheaper labour elsewhere (1); fewer rules and regulations elsewhere (1); raw material exhaustion (1); obsolete technology (1); out of fashion/demand collapses (1); strong foreign competition (1); sector shift	4(1+1) +(1+1)

	(1) ... 2 <sup>nd</sup> mark available in each case where factor developed into full reason/cause e.g. cheaper Asian labour (1) leads to global shift of manufacturing out of N. America and W. Europe (1).	
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Question Number		Indicative content
<b>4(c)</b> Type 1 item		<p>The energy gap describes the balance of energy demand and supply with the gap referring to a potential shortage as demand grows faster than supply. This rising demand for energy and the reasons behind it is a key part of the answer. The challenges of raising supply in a world trying to reduce carbon emissions to match this rising demand is the other part. An energy gap is a national issue for some countries. The reasons for rising energy demand relate to population increase and economic development. Manufacturing, transport, heating and cooling ... are associated with rising and high levels of economic development. This situation exists in countries at various stages of the development pathway from LICs to NICs to HICs. Answers can relate to all or any of these.</p> <p>In some countries supply struggles to match rising demand because e.g. urgent phasing out of fossil fuels which are more energy-productive than renewables replacing them; declining or exhausted fossil fuel deposits; affordability of fossil fuel imports (e.g. oil ..); apprehensions re nuclear power generation; energy-security issues/attempts to avoid over-dependence on energy imports; slow introduction of renewable sources as technology gradually advances.....</p> <p>Do not accept energy surplus as part of the energy gap it must be referring to an energy deficit.</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect a few relevant points along the right lines about the nature and/or causation of the gap. Likely to be unstructured. Definitions only fit in this level. Perhaps random points about causation.
<b>Level 2</b>	3-4	Expect some clarity as to meaning of energy gap and the identification of a number of key contributory factors. Likely be unbalanced in terms of focus on one side i.e. demand or supply. Accept generic or country-specific response.
<b>Level 3</b>	5-6	Expect a clear understanding of the meaning of energy gap either implicitly or explicitly and a range of well-developed relevant factors covering both demand-side and supply-side. At top of level 3, a coherent explanation of the term, its nature and causes. May be reference to specific country(ies) or types of country e.g. NICs.



Question Number		Indicative content
<b>4(d)</b> <b>Type 1 item</b>		<p>The four economic sectors - primary, secondary, tertiary and quaternary (which where defined by candidates will benefit their response) - vary in size and importance within countries. There can be significant regional variations in sector size and importance. National % are merely averages with variation from area to area. The question asks for the extent of variation so good answers will include either adjectives or actual measurement e.g. %s.</p> <p>Intra-country variations occur in all countries e.g. urban v. rural; prosperous regions v. peripheral regions; remote rural areas v. accessible rural areas ... Accept local scale contrasts e.g. rich urban areas v. poorer urban areas.</p> <p>In the UK the South East and London have a very proportion in tertiary/quaternary and a very low proportion in primary and secondary. Midlands has higher proportion in secondary. Urban areas tend to have higher secondary employment; rural often rely on primary activities in both HICs &amp; LICs. Prosperous areas in HICs tend to have high tertiary/quaternary employment; in LICs/MICs/NICs higher secondary employment.</p> <p>These regional variations generally reflect regional disparities in income and development.</p> <p>Cap at 3 marks if only compared between countries and not within.</p> <p>Cap at 5 marks if compared changes over time in one country.</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-3	Expect a few basic, perhaps random points about comparative sectoral size at the regional/local scale. Sectors identified though response sketchy and unbalanced.
<b>Level 2</b>	4-6	Expect a range of statements with reference to intra-country contrasts i.e. change between regions. Response will be unbalanced and partial but have some development. Some clarity as to nature of the sectors.
<b>Level 3</b>	7-9	Expect a coherent and well-developed examination/illustration that there are major sectoral contrasts within countries (does not mean it has to be more than one country). Named examples of regions and their sectoral importance may be offered. Nature of the sectors to be clear. Some evidence of evaluation of relative sector importance evident, esp. at top of level e.g. domination of South East by tertiary/quaternary; % breakdowns per region ...

**Question 5 – Ecosystems and rural environments**

Question Number	Answer	Mark
5(a)(i) Type 4 item	Accept arable (1); cereal (1); extensive (1). Crop alone insufficient.	1

Question Number	Answer	Mark
5(a)(ii) Type 2 item	Key : B temperate grassland Distractors : A - not desert as there is plant growth C - not TRF as no trees visible D - not tundra as only vegetation are dwarf species (e.g. moss, lichen, occasional tree)  and basically not farmed.	1

Question Number	Answer	Mark
5(a)(iii) Type 2 item	Credit up to any two valid interactions applicable to temperate grasslands for max or generic interactions up to max of 1 mark for either living : non-living or living : living or non-living : non-living. Temperate grassland interactions e.g. high evaporation and chernozem soils (1); low rainfall and no trees (1) ... Generic interactions cap at max of 1 mark e.g. climate: vegetation (1); soils: vegetation (1); fauna: vegetation (1)...	2(1+1)

Question Number	Answer	Mark
5(b)(i) Type 2 item	Max marks calls for full and accurate definition e.g. the number and variety of living species(1) found in a given area (1) or ecosystem (1). 1 mark answers will be partial e.g. biological diversity (1); range of plants (1)....	2(1+1)

Question Number	Answer	Mark
5(b)(ii) Type 1 item	Award initial marks for basic but distinctive reason e.g. climate (1); human activities (1); nutrient/ food availability (1); soil type (1) ... Accept two distinctive climatic reasons (e.g. temperature (1); rainfall (1) ..) or human activities (e.g. deforestation (1); monoculture (1) ..). 2 <sup>nd</sup> marks available for developing it into full reason e.g. <ul style="list-style-type: none"> <li>• climate (1) heat and moisture increase plant productivity and biodiversity (1).</li> <li>• human activities (1) biomes with high farming potential have biodiversity reduced (1).</li> <li>• soil type (1) greater soil fertility tends to increase )</li> </ul>	4(1+1)+(1+1)

	biodiversity (1)	
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Question Number		Indicative content
<b>5(c)</b> <b>Type 1 item</b>		This may be answered in case study-style. Ways of raising agricultural production by improving productivity (i.e. increasing output per unit area of farmland) include mechanisation; applying fertilisers, herbicides and pesticides; irrigation; glasshouses; crop rotation; genetic engineering (plants and animals); HYVs; selective breeding ... Extending the area of farmland is another way to raise production but not via productivity and greater intensification of farming. Urban -rural migration to encourage more farming to take place. Two ways may be known in case study detail with place-specific references.
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect a few simple, perhaps random points about raising production or ways merely identified e.g. more intensive farming; irrigation ...
<b>Level 2</b>	3-4	Expect either one way explained or a number of ways merely outlined. A partial, unbalanced answer with explanation tentative rather than full.
<b>Level 3</b>	5-6	Expect clear understanding of the issue. At least two ways well explained. Expect some process and detail, perhaps case study material.

Question Number		Indicative content
5(d) Type 1 item		<p>HIC rural settlements and environments have been and are changing for better or worse. The nature of these changes, an evaluation of whether these are positive and negative and to whom and why this is so should be present in good answers.</p> <p>There is a relationship between the type and rate of change in rural settlements and distance from large urban areas. Improvements in transport and increasing car ownership have brought about rural settlement change in HICs, inc. the UK. The most accessible villages have grown, lost their original character, form and function, and are often described as suburbanised/commuter/dormitory villages. The inhabitants are no longer mainly in farming but can be wealthy, retired, commuters, professional workers. New and different types of housing and changes in service provision e.g. new shops, restaurants ... can be found in accessible villages. New economic activities e.g. industry, retailing, theme parks ... are moving to greenfield sites in accessible rural areas. The social and environmental characteristics change in line with repopulation and economic changes. These changes can be part of the counter-urbanisation movement and have both positive and negative effects e.g. longstanding residents may welcome the smarter buildings but resent the weekend/summer holiday disturbance.</p> <p>Inaccessible villages have tended to experience rural depopulation and declining service provision. Change here may be seen as negative by most people.</p> <p>Improving technology e.g. broadband availability in rural environments is changing the character of both accessible and less accessible villages e.g. rural teleworking rather than an urban office lifestyle.</p> <p>Creditable answers must relate to HICs.</p>
Level	Mark	Descriptor
Level 1	1-3	Expect basic, perhaps random points about changing rural settlements in HICs. Valid changes may be listed. Answer likely to be unstructured.
Level 2	4-6	Expect some development of the key changes in either accessible/growing villages and/or inaccessible/declining villages. Answer will have limited range but will address how change is occurring with indication as to whether change is positive or negative. May be some reference to appropriate examples. Ceiling for R-U-F settlement answers.
Level 3	7-9	Expect a well-developed consideration of change in accessible and/or inaccessible villages with reference to the drivers behind change. At top of level expect the accessible/inaccessible village contrast and the role of transport as well some evaluation of how original village was and new one now is and including some justification e.g. the view of a stakeholder. May use appropriate examples well.

### Question 6 – Urban environments

Question Number	Answer	Mark
6(a)(i) Type 3 item	15	1

Question Number	Answer	Mark
6(a)(ii) Type 4 item	Key : C 10 million Rationale: 10 million population is the standard definition of a mega city. Furthermore, all 15 Chinese cities on Figure 6 have populations greater than 10 million. Options A and B are too small by the standard definition. Option D does not match map evidence as well as exceeding the standard definition.	1

Question Number	Answer	Mark
6(a)(iii) Type 2 item	Award 1 mark for realisation that urbanisation means more people living in towns/cities with 2 <sup>nd</sup> mark for data/date e.g. China's urban population has increased from 328 to 780 m. 1980-2015 (1); increase from 19.6% to 56.6% of people in Chinese cities 1980-2015 (1); Beijing grew from 5.4 to 24.9 m. 1980-2015 (1).	2(1+1)

Question Number	Answer	Mark
6(b)(i) Type 2 item	Max marks calls for full and accurate definition e.g. the price (1) of buying/renting an area of land (1). Part definitions e.g. land prices (1); how much land costs (1) ...	2(1+1)

Question Number	Answer	Mark
6(b)(ii) Type 1 item	Allow 1 mark for each valid factor identified e.g. accessibility (1); amount of land available/limited supply (1); high demand (1); locational needs of land bidders (1); transport changes (1); distance from centre of activity (1); environmental quality (1) ...  2 <sup>nd</sup> marks for development of factor into a full reason e.g. <ul style="list-style-type: none"> <li>• accessibility (1) &gt; city centre values highest because most accessible for public transport (1).</li> <li>• transport changes (1) &gt; building of new ring roads raise values where they intersect with main roads (1).</li> <li>• locational needs of land bidders (1) &gt; some high-end services e.g. business law firms require prestigious sites (1).</li> </ul>	4(1+1)+(1+1)

Question Number	Indicative content	
<b>6(c)</b>	<p>This can be answered generically or with the help of a specification case study of a named city.            Expect candidates to refer to some or all of the following improvement strategies:</p> <ul style="list-style-type: none"> <li>• demolishing shacks/clearance of worst areas (slum clearance)</li> <li>• provision of services/infrastructure on-site projects</li> <li>• building of government housing on-site or of new towns</li> <li>• self-help schemes</li> <li>• combination of some or all above</li> <li>• rural development programmes to slow out-migration.</li> </ul> <p>Some responses may contrast changes/improvements to mitigate problems with locations where there is no management. Improvements can be to residents' lives and opportunities, the flow of incomers, the city population generally and the environment. Better responses may offer extent of improvement (e.g. effectiveness of management) in terms of how/whether shanty problems have been mitigated/improved i.e. poor health, hygiene and sanitation; overcrowding; inadequate facilities ... Reference to urban sustainability creditable as are comments such as : unenviable task for government given large numbers and lack of funding; all efforts inadequate; cooperation better than conflict therefore self-help schemes including security of tenure for squatters effective; quick-fix clearance; affordability of big building projects for slow-growing LICs; whole-city redevelopment programmes such as Vision Mumbai incorporating Dharavi and other shanty towns ok for growing India.</p>	
Level	Mark	Descriptor
<b>1</b>	1-2	Expect a limited response either identifying some basic shanty town improvements, either place-specific or generic. Simple sketchy points.
<b>2</b>	3-4	Expect a clear but partial presentation of an improved environment may attempt some explanation. Some development of the key improvement(s) to be offered.
<b>3</b>	5-6	Expect a good understanding of improvement with some focus on the extent of changes/improved conditions, opportunities ... and greater urban sustainability. The nature of the improvements will be well-developed and answer will have good range and/or depth.

Question Number		Indicative content
<b>6(d)</b> Type 1 item		<p>The question seeks to examine the greenfield (land previously not built upon) versus brownfield (derelict land once used for industry and/or housing) debate.</p> <p>Retail complexes, business parks and industrial estates have in recent times located on the rural-urban fringe of HIC cities as the growth in car ownership and road haulage have made these sites highly accessible. These greenfield sites on the fringe have led to urban sprawl and pressures on green belts. Traditional edge-of-city land users such as smallholdings, stables ... and attractive countryside face issues stemming from economic growth e.g. congestion, pollution, litter, degraded land, ecosystem damage, demand for motorway access, car parking space, bus links to the city centre ...</p> <p>At the same time, brownfield sites have emerged often in areas surrounding the commercial centre of towns/cities. Inner city decline and deindustrialisation left former warehouse and factory sites often contaminated derelict and vacant. As part of inner city regeneration governments have encouraged re-use of this land rather green land on the urban fringe. The UK government has been aiming for 60% of new housing needed by 2020 to be built on brownfield sites.</p> <p>The arguments for new developments on brownfield land:</p> <ul style="list-style-type: none"> <li>• environmental protection</li> <li>• use of existing urban infrastructure is cost-effective e.g. roads, schools...</li> <li>• addresses eyesore of derelict land</li> <li>• creates jobs in high unemployment areas</li> </ul> <p>The arguments for new developments on greenfield land:</p> <ul style="list-style-type: none"> <li>• pressure from developers who want to build where people want to live</li> <li>• high car ownership and goods distribution by road make fringe land highly accessible</li> <li>• cheaper for developers to build on greenfield land as no clean-up costs</li> <li>• most environmentally damaging effects can be mitigated by landscaping, screening, careful management...</li> <li>• attract custom from other areas</li> </ul> <p>Good answers will reach a justified conclusion e.g. continue to protect the green belt and not give in to developers wanting to build there; benefits of new developments on the urban edge greater than the environmental problems caused.</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-3	Expect basic points about new urban developments in HICs e.g. new land users listed... or largely unsubstantiated decision about site preference. Brief and unbalanced answers.
<b>Level 2</b>	4-6	Expect some development of an argument with a partial attempt to raise key considerations e.g. urban sprawl; green belt. There will some depth or some range but answer will lack balance. May refer to appropriate examples.

<b>Level 3</b>	7-9	Expect an expanded answer with a range of key considerations raised and a balanced argument, including the cases for greenfield and brownfield land. There will be a justified conclusion. Examples may be offered and used well in the argument.
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## Section C Practical Geographical Enquiry

### Question 7 Coastal Environments Fieldwork

Question Number	Answer	Mark
7(a)(i) Type 4 item	Key: C clinometer Options A, B and C are clearly incorrect as there is not an augur, calliper and quadrat visible in the image.	1

Question Number	Answer	Mark
7(a)(ii) Type 1 item	Reserve 1 mark for indicating slope angle measurement. 2 further marks available for practicalities of use e.g. point at fixed target (1); read measurement when wheel locked and stationary (1) ...	3(1)+(1+1)

Question Number	Answer	Mark
7(a)(iii) Type 1 item	Award 1 mark for each relevant factor identified e.g. beach access (1); the tides (1); beach width (1) ... 2 <sup>nd</sup> marks can be given where the rationale behind the identification made clear e.g. <ul style="list-style-type: none"> <li>• beach access (1) &gt; ease of access can be an issue on cliffed coastlines (1)</li> <li>• the tides (1) &gt; high tide can be a safety issue (1); beach may be inundated at high tide (1)</li> </ul>	4(1+1)+(1+1)

Question Number	Answer	Mark
7(b)(i) Type 1 item	Award 1 mark for correct marking up of axis for plant species per sq.m. Allow 3 marks for accuracy of data plotting as follows : 1 accurately plotted site = 0 marks 2-3 accurate plots = 1 mark 4-5 “ “ = 2 marks 6 “ “ = 3 “	4 (1)+(1+1+1)

Question Number	Answer	Mark
7(b)(ii) Type 1 item	Expect to credit 2 of the following 3: slope angle (1); height (1) and distance (1).	2(1+1)

Question Number	Answer	Mark
7(b)(iii)	1 mark credit for identifying any valid advantage e.g.	2(1+1)

Type 1 item	relationships/correlations (1); comparison (1); one diagram (1); easier to draw conclusions (1)... Award 2 <sup>nd</sup> mark where description explicitly indicates the advantage e.g. three curves on same axes (1) reveals at a glance changes along transect (1).	
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Question Number		Indicative content
7(b)(iv) Type 1 item		<p>Conclusions should relate to this data and data-supported conclusions must receive good credit.</p> <p>Site 1 to site 6 transect.</p> <p>Key conclusions :</p> <ul style="list-style-type: none"> <li>• plant diversity increases inland</li> <li>• pH falls inland</li> <li>• both above trends consistent except site 5 (grey dunes)</li> <li>• negative correlation between pH &amp; plant diversity</li> <li>• most plant species at site 6, 15 where soils most acidic</li> <li>• no plants and alkalinity on beach</li> </ul>
Level	Mark	Descriptor
Level 1	1-2	Expect basic, perhaps random observations from the data. Points likely not to be evidenced and be little more than “lifts.” Unlikely to address Figure 7c in an overall fashion.
Level 2	3-4	Expect some development of basic points but answer will be partial in terms of evidence and range. Attempts to draw at least one conclusion.
Level 3	5-6	Expect an expanded answer with at least two well-developed concluding statements. Likely to support statements with data.

Question Number	Answer	Mark
7(b)(v) Type 1 item	<p>Credit any three aspects of an investigation that might impinge on conclusions reached and so form part of the task of evaluating the process and results</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• check accuracy of data collected (1)</li> <li>• ensure sufficient data collected (1)</li> <li>• check careful data recording (1)</li> <li>• check accuracy of data collation (1) and data presentation (1)</li> <li>• reliable analysis and interpretation of findings (1)</li> <li>• monitor suitability of sites chosen (1)</li> <li>• compare against previous primary studies (1)</li> <li>• look up secondary data</li> </ul>	<p>3(1+1+1) or 1+ (1+1) or 1+1+1</p>

### Question 8 Hazardous environments fieldwork

Question Number	Answer	Mark
8(a)(i) Type 4 item	Key: C Stevenson Screen Options A, B and D are clearly incorrect. There is no rain gauge and whirling hygrometer visible in the image, and the Beaufort scale is not a piece of equipment.	1

Question Number	Answer	Mark
8(a)(ii) Type 1 item	Reserve at least 1 mark for its practical use by an observer e.g. regular visits with log (1); open front panel and record data (1); log current instrument readings (1) .... Other creditworthy points may refer to its housing for variety of instruments (1); allows air temperature in shade not sun-exposed temperature to be recorded (1); safety and instrument protection (1) ...	3 (1)+(1+1)

Question Number	Answer	Mark
8(a)(iii) Type 1 item	Award 1 mark for each valid factor identified e.g. open site away from buildings (1); accessible (1); secured site (1); level ground (1); avoids vegetation (1) .... 2 <sup>nd</sup> mark available for illustration as to why relevant to data collection e.g. <ul style="list-style-type: none"> <li>• secured site (1) &gt; ensure no intruder tampering with instruments (1)</li> <li>• open and away from buildings (1) &gt; avoid microclimate caused by buildings (1)</li> <li>• access (1) &gt; convenient for regular visits (1)</li> </ul>	4(1+1)+(1+1)

Question Number	Answer	Mark
8(b)(i) Type 1 item	Award 1 mark for correct marking up of axis for air temperature. Allow 3 marks for accuracy of data plotting as follows : 1 accurately plotted site = 0 marks 2-3 accurate plots = 1 mark 4-5 “ “ = 2 marks 6 “ “ = 3 “	4(1)+(1+1+1)

Question Number	Answer	Mark

<b>8(b)(ii)</b> Type 1 item	Expect to credit 2 of the following 3: slope angle (1); distance (1); altitude (1).	<b>2(1+1)</b>
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Question Number	Answer	Mark
<b>8(b)(iii)</b> Type 1 item	1 mark credit for identifying any valid advantage e.g. relationships/correlations (1); comparison (1); one diagram (1); easier to draw conclusions (1) .. Award 2 <sup>nd</sup> mark where description explicitly indicates the advantage e.g. three curves on same axes (1) reveals at a glance changes along transect (1).	<b>2(1+1)</b>

Question Number	Indicative content	
<b>8(b)(iv)</b> Type 1 item	<p>Conclusions should relate to this data and data-supported conclusions must receive good credit. Site 1 to site 6 cross-section. Key conclusions :</p> <ul style="list-style-type: none"> <li>• weather-relief relationships e.g. wind speed rises sharply with height temperature falls off with height</li> <li>• data and details relating to these relationships e.g. 2.7 degree C. drop in temperature with 400 metres of altitude; wind speed peaks at exposed site 4 ....</li> <li>• weather element-weather element relationship i.e.. as temperature falls wind speed rises.</li> </ul>	
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect basic, perhaps random observations from the data. Points likely not to be evidenced and be little more than “lifts.” Unlikely to address Figure 8c in an overall fashion.
<b>Level 2</b>	3-4	Expect some development of basic points but answer will be partial in terms of evidence and range. Attempts to draw at least one conclusion.
<b>Level 3</b>	5-6	Expect an expanded answer with at least two well-developed concluding statements. Likely to support statements with data.

Question Number	Answer	Mark
<b>8(b)(v)</b> Type 1 item	Credit any three aspects of an investigation that might impinge on conclusions reached and so form part of the task of evaluating the process and results e.g. <ul style="list-style-type: none"> <li>• check accuracy of data collected (1)</li> <li>• ensure sufficient data collected (1)</li> <li>• check careful data recording (1)</li> <li>• check accuracy of data collation (1) and data presentation (1)</li> <li>• reliable analysis and interpretation of findings (1)</li> <li>• monitor suitability of sites chosen (1)</li> <li>• compare against previous primary studies (1)</li> <li>• look up secondary data</li> </ul>	3(1+1+1) or 1+ (1+1) or 1+1+1

### Question 9 Economic activity and energy fieldwork

Question Number	Answer	Mark
9(a)(i) Type 2 item	For full marks expect a fully stated more specific aim (objective-like) e.g. to investigate the relative importance (1) of the location factors (1) of supermarkets (1); to investigate how various types (1) of location factor (1) determine bank locations (1); to investigate how various service industry location factors (1) work together to attract industry (1). Award 1 mark for outlines and broad intentions e.g. to investigate service industry location factor overlap (1); to investigate what factors attract service industry (1).	2(1+1)

Question Number	Answer	Mark
9(a)(ii) Type 1 item	Allocate 1 mark to each of up to two valid secondary sources re industrial (factory/services) locations identified e.g. local authority/local planning department (1); OS map (1); local business groups/"chambers of commerce" (1); textbooks (1); internet (1); Goad plan (1) ... with 2 <sup>nd</sup> mark available for well-developed (described) sources, perhaps indicating type of information provided/sought e.g. Goad plan (1) > maps all shops ... in town (1) Textbooks (1) > provide industrial location theory (1)	4(1+1)+(1+1)

Question Number	Answer	Mark
9(a)(iii) Type 1 item	Allocate 1 mark to each consideration valid for a factory/services location investigation identified up to max of 3 with 2 <sup>nd</sup> mark available where consideration outlined/developed : <ul style="list-style-type: none"> <li>• ensuring safety from harm/danger (1)</li> <li>• identifying specific hazards/dangers e.g. traffic; getting lost(1) and how they can harm(1)</li> <li>• what methods of gathering this information to employ (1) e.g. use Google maps/Google StreetView .....(1)</li> <li>• the need to assess the risk/chance of them harming e.g. a risk rating (1)</li> <li>• what risk mitigation to employ/controls to minimise impact (1) e.g. large groupwork (1)</li> </ul> Max marks for 2 valid considerations identified and outlined or for 3 valid considerations with at least one more than identified i.e. developed.	4(1+1+1) +(1) or (1+1)+(1+1)

Question Number	Answer	Mark
9(a)(iv) Type 1 item	<p>Relevant equipment and techniques obviously depends to some extent on the precise aims of the investigation and so the data that needs to be collected. There are many possibilities so some examiner discretion will be called for. However, for factory or service industry locations to be investigated the following are generally most likely to be creditable :</p> <p>Equipment (4 marks) - clipboard (1); base map (1); camera (1); recording sheets (1); questionnaire (1)... Max 1 for stationary</p> <p>Field techniques (4 marks) - sketching (1); interviewing (1); recording (1) individual and/or groupwork (1) ... Accept sampling techniques in this section.</p> <p>In each case, max of 3 marks where use of equipment/technique not described/developed but merely identified. 4 marks are available for each aspect of the question and max marks in each case requires some description of use e.g. max marks can be awarded where 2 pieces of equipment and 2 field techniques are identified then described as to how they can be used in the field to collect factory/services location data/information. Do not double credit the same response between the two sections.</p>	<p>8(4+4) i.e.(1+1)+(1+1) or (1+1+1) or (1+1)+1+1 x 2.</p>

Question Number	Answer	Mark
9(a)(v)	<p>Expect creditable responses to offer: data collation and storage (1) and data presentation (1). Each way to be marked out of 2 with 2<sup>nd</sup> mark in each case for exemplification/development e.g. to collate data collected (1) developed spreadsheet so that easily retrieved (1); data presentation (1) graphs/diagrams to represent data best constructed electronically(1).... Accept responses that identify research preparation (1) as a valid way of using ICT and weather forecast (1)</p>	<p>4(1+1)+(1+1)</p>

Question Number	Answer	Mark
<b>9(a)(vi)</b> <b>Type 1 item</b>	<p>Expect quantitative technique to be interpreted as simple statistical technique i.e. mean (1); mode (1); median (1); best-fit line (1); correlation (1)... Award 1 mark for identifying valid technique.</p> <p>Remaining 2 marks to be awarded on a points basis for outlining its use with the data (can be generic) e.g.</p> <ol style="list-style-type: none"> <li>1. mean (1) calculate mean for a number of fieldwork sites (1)</li> <li>2. correlation (1) simply correlate two variables (1) negative correlation as one factor increases the other falls (1)</li> </ol> <p>Accept up to max of 2 responses referring to use of broader numerical data e.g. using environmental quality data to compare different sites (1) ....</p>	<p><b>3(1)+(1+1)</b></p>



### Question 10 Ecosystems and Rural Environments Fieldwork

Question Number	Answer	Mark
10(a)(i) Type 2 item	For full marks expect a fully stated more specific aim (objective-like) e.g. to investigate the relative importance (1) of farming inputs/factors (1) in different types of farming (1); to investigate how various types of farming(1) have different inputs (1); to investigate how various types of farming (1) work as different systems (1). Award 1 mark for outlines and broad intentions e.g. to investigate how farms work as a system(1); to investigate ways of raising farm output (1).	2(1+1)

Question Number	Answer	Mark
10(a)(ii) Type 1 item	Allocate 1 mark to each of up to two valid secondary farming sources identified e.g. Ministry of Agriculture... (1); OS map (1); local government authority (1); farmers' groups/union (1); textbooks (1); internet (1) ... with 2 <sup>nd</sup> mark available for well-developed (described) sources, perhaps indicating type of information provided/sought e.g. Ministry ... (1) > farming types map (1) Textbooks (1) > provide farming system theory (1)	4(1+1)+(1+1)

Question Number	Answer	Mark
10(a)(iii) Type 1 item	Allocate 1 mark to each consideration valid for a farm system investigation identified up to max of 3 with 2 <sup>nd</sup> mark available where consideration outlined/developed : <ul style="list-style-type: none"> <li>ensuring safety from harm/danger (1)</li> <li>identifying specific hazards/dangers e.g. farm animals; losing footing(1) and how they can harm(1)</li> <li>what methods of gathering this information to employ (1) e.g. use Google maps .....(1)</li> <li>the need to assess the risk/chance of them harming e.g. a risk rating (1)</li> <li>what risk mitigation to employ/controls to minimise impact (1) e.g. large groupwork (1)</li> </ul> Max marks for 2 valid considerations identified and outlined or for 3 valid considerations with at least one more than identified i.e. developed.	4(1+1+1) +(1) or (1+1)+(1+1)

Question Number	Answer	Mark
10(a)(iv) Type 1 item	<p>Relevant equipment and techniques obviously depends to some extent on the precise aims of the investigation and so the data that needs to be collected. There are many possibilities so some examiner discretion will be called for. However, for farm system inputs to be investigated the following are generally most likely to be creditable :</p> <p>Equipment (4 marks) - clipboard (1); base map (1); camera (1); recording sheets (1); questionnaire (1) .. Max 1 for stationary</p> <p>Field techniques (4 marks) - sketching (1); interviewing (1); recording (1) individual and/or groupwork (1) ... Accept sampling techniques in this section.</p> <p>In each case, max of 3 marks where equipment/technique not described/developed but merely identified. 4 marks are available for each aspect of the question and max marks in each case requires some description of use e.g. max marks can be awarded where 2 pieces of equipment and 2 field techniques are identified then described as to how they can be used in the field to collect farm system input data/information. Do not double credit the same response between the two sections.</p>	<p>8(4+4) i.e.(1+1)+(1+1) or (1+1+1) or (1+1)+1+1 x 2.</p>

Question Number	Answer	Mark
10(a)(v)	<p>Expect creditable responses to offer: data collation and storage (1) and data presentation (1). Each way to be marked out of 2 with 2<sup>nd</sup> mark in each case for exemplification/development e.g. to collate data collected (1) developed spreadsheet so that easily retrieved (1); data presentation (1) graphs/diagrams to represent data best constructed electronically(1).... Accept responses that identify research preparation (1) as a valid way of using ICT and weather forecast (1)</p>	<p>4(1+1)+(1+1)</p>

Question Number	Answer	Mark
<b>10(a)(vi)</b> <b>Type 1 item</b>	<p>Expect quantitative technique to be interpreted as simple statistical technique i.e. mean (1); mode (1); median (1); best-fit line (1); correlation (1) .. Award 1 mark for identifying valid technique.</p> <p>Remaining 2 marks to be awarded on a points basis for outlining its use with the data (can be generic) e.g.</p> <ol style="list-style-type: none"> <li>1. mean (1) calculate mean for a number of fieldwork sites (1)</li> <li>2. correlation (1) simply correlate two variables (1) negative correlation as one factor increases the other falls (1)</li> </ol> <p>Accept up to max of 2 responses referring to use of broader numerical data e.g. using environmental quality data to compare different sites (1) ....</p>	<p><b>3(1)+(1+1)</b></p>

## Section D Global issues

### Question 11 – Fragile environments

Question Number	Answer	Mark
11(a)(i) Type 4 item	Key : D 10.0 degrees C Rationale: accurate graph reading for that year shows that temperatures below 10 degrees C are inaccurate. Options A, B and C are distractors.	1

Question Number	Answer	Mark
11(a)(ii) Type 2 item	“significantly” to be defined as 1 degree C. or more from long-term trend. Therefore, acceptable years for 1 mark credit are: 1959 or 60, 1963 or 64, 1986 or 87, 2010 or 11	1

Question Number	Answer	Mark
11(a)(iii) Type 2 item	Suggest award 3x1 mark as follows : <ul style="list-style-type: none"> <li>• recognising basic Central England temperature trend i.e. increasing long-term trend(1)</li> <li>• matching global trend (i.e. approx. 1 degree C. increase) or similar trends elsewhere (1)</li> <li>• short-term evidence could be regarded as supportive (e.g. increasing number of years above trend post-1980) or variations above and below the long-term trend (more extremes) (1).</li> </ul>	3 (1+1+1)

Question Number	Answer	Mark
11(b)(i) Type 2 item	Max mark requires full and accurate definition e.g. maintaining or improving living standards (1) without damaging the prospects for future generations (1). 2 mark definitions need to address both time periods i.e. present and future. 1 mark for partial but valid statements which deal with only one time period e.g. natural environment not destroyed (1); the globe’s future (1)... 1 mark responses likely to deal only with the future i.e. lasting/durable.	2(1+1)

Question Number	Answer	Mark
<b>11(b)(ii)</b> <b>Type 1 item</b>	<p>Allocate 3 of 4 marks as follows :</p> <ol style="list-style-type: none"> <li>1. for basic idea that fragility refers to vulnerable/sensitive to change (1); struggle to recover (1); easily damaged (1)....</li> <li>2. environments/ecosystems now threatened by people/human activities (1).</li> <li>3. delicate balance of ecosystem disruptable/knock-on effects (1).</li> </ol> <p>Final mark for another valid and distinctive point e.g. natural fragility (1) &gt; harsh climate (1)... or some development of one of the three above points, especially 2 or 3 e.g.</p> <ol style="list-style-type: none"> <li>2. resource extraction (1) &gt; damaging impacts on landscape and wildlife, esp. loss of biodiversity (1)</li> <li>3. knock-on effects through ecosystem (1) &gt; loss of one species leads to decrease in others through food chain (1)</li> </ol>	<b>4(1+1+1)+1</b>

Question Number	Answer	Mark
<b>11(b)(iii)</b> <b>Type 1 item</b>	<p>Credit each valid and distinctive way identified with 1 mark e.g. international cooperation (1); education (1); recycling of waste (1); greater energy conservation (1); more use of renewable energy sources (1); more use of clean/non-polluting production methods (1); conservation/protected zones (1); government policy (1) ...</p> <p>Where factor developed so that it helps to explain how sustainability would be enhanced award 2<sup>nd</sup> mark e.g.</p> <ul style="list-style-type: none"> <li>• international cooperation (1) &gt; rainforests more sustained when timber-buying countries look to import from properly managed forests (1)</li> <li>• education (1) &gt; Greenpeace raise public awareness of sustainability issues (1)</li> <li>• conservation/protected zones (1) &gt; National Nature Reserves in England look after particular wild flower, animal, insect or bird habitats (1)</li> </ul>	<b>4(1+1)+(1+1)</b>

Question Number		Indicative content
<b>11(c)</b> <b>Type 1 item</b>		<p>The causes of desertification are both :</p> <ol style="list-style-type: none"> <li>1. physical geography i.e. climate change (less and variable rainfall/prolonged drought)</li> <li>2. human geography e.g. <ul style="list-style-type: none"> <li>* a sequence of events starting with population growth and increased demand for food resulting in overgrazing/continuous monoculture and soil erosion</li> <li>* cutting down of trees for fuel and shelter</li> <li>* nomadic pastoralism's mis-use of land for subsistence farming leaving soil bare before migrating again.</li> </ul> </li> </ol> <p>Both human and non-human causes interact and induce soil erosion rendering areas largely unvegetated dust bowls with little farming possible (deserts). Desertification via soil erosion is a process. Candidates should have some case study knowledge of an affected area e.g. the Sahel and the spreading Sahara.</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect a few simple, perhaps random points about causation or actual causes merely identified e.g. drought; population pressure. Simple responses addressing only human or non-human cause.
<b>Level 2</b>	3-4	Expect either human or non-human well explained or a number of causal factors, human and non-human merely outlined. Explanation likely to be tentative and incomplete if balanced in terms of human/non-human.
<b>Level 3</b>	5-6	Expect clear understanding of the issue with some process and detail evident. May offer causation as a integrated sequence leading to soil erosion, and perhaps examples. A balanced response with human activities and climate change.

Question Number		Indicative content
11(d) Type 1 item		<p>This is a specification case study question is about the impact of global warming/climate change in one named country. Answers should offer some evaluation of the threats as the question asks for the extent of threat e.g. weighing up of negative impacts (threats) v. positive impacts; assessing the significance of impacts where they are all positive or all negative ...</p> <p>Many answers are likely to refer to islands threatened by rising sea levels e.g. Tuvalu; Maldives ... Bangladesh may also be offered.</p> <p>Candidates may address consequences to:</p> <ul style="list-style-type: none"> <li>• human society e.g. spread of disease; coastal flooding; migrations in search of water; famines/food shortage from drought; conflicts over water supplies; economic opportunities for tourism or mineral extraction; economic threats from advancing aridity ..</li> <li>• natural environment e.g. warmer oceans and marine extinction; ecosystem changes from vegetation fires; more and stronger hazard events; wildlife impacts from extreme weather events ..</li> </ul> <p>Generic responses are acceptable up to Level 2 but Level 3 requires a place-specific response e.g. rising sea levels &gt; submergence of Bangladeshi delta &gt; farmland loss &gt; resettlement issues &gt; environmental refugees ...</p>
Level	Mark	Descriptor
Level 1	1-3	Expect a basic awareness of the point of the question. Sketchy response including a few simple remarks about human and/or natural consequences.
Level 2	4-6	Expect some development of the answer with valid consequences but unbalanced in terms of human and natural and restricted in range and/or depth. Some evaluative evidence with reference to extent/significance of threat at top of level.
Level 3	7-9	Expect some depth of treatment, a degree of balance with regard to human and natural consequences and coherent explanation. Clear evidence of evaluation of significance/extent of threat and/or positive v. negative consequences. Good understanding of the required case study.

## Question 12 – Globalisation and migration

Question Number	Answer	Mark
12(a)(i) Type 4 item	Key: B Europe Rationale: simple reading of Figure 12a demonstrates that A, C and D are inaccurate and distractors.	1

Question Number	Answer	Mark
12(a)(ii) Type 2 item	The evidence from Figure 12a for 1 mark e.g. 60% of international migrants in past 50 years to HICs (1); 53% for USA & Europe is over half (1)	1

Question Number	Answer	Mark
12(a)(iii) Type 2 item	Award 1-2 marks for any valid and distinctive factor e.g. neighbouring country (1); common ethnicity (1); open borders (1) ... Max of 2 for factor identification only. Reserve 1 mark for factor development whether 1 or 2 factors identified e.g. neighbouring country (1) > less distance/relative ease of transport (1).	3(1+1)+(1)

Question Number	Answer	Mark
12(b)(i) Type 2 item	Max marks requires full and accurate definition e.g. a sequence of stages in producing goods (1) from raw material gathering to sale to consumers (1). Partial yet valid statements = 1 e.g. a network of companies and producers (1); how goods are made and distributed (1) ....	2(1+1)



Question Number	Answer	Mark
12(b)(ii) Type 1 item	<p>Allocate 1 mark to each valid and distinctive factor/reason e.g. maximise sales (1); labour costs (1); government incentives (1); profiteering/maximise profits (1); close to markets (1); improved communications (1); minimise restrictions (1) ....</p> <p>2<sup>nd</sup> mark for developing factor into a full reason e.g.</p> <ul style="list-style-type: none"> <li>• close to markets (1) &gt; local to/able to sell to growing and major markets(1)</li> <li>• profiteering (1) &gt; where skilled labour cheaper profits greater (1)</li> <li>• improved communications (1) &gt; modern ICT systems allow factories around the world to keep in touch (1)</li> </ul>	4(1+1)+(1+1)

Question Number	Answer	Mark
12(b)(iii) Type 1 item	<p>Look to point mark this descriptive question on the nature of the global shift in manufacturing. Cap purely why (i.e. reasons rather than nature) responses at max of 2 marks.</p> <p>Credit two core points with 1 mark each:</p> <ul style="list-style-type: none"> <li>• shifting refers to location (1)</li> <li>• shift is to MICs/RICs/LICs from HICs (1)</li> </ul> <p>Further creditable points include :</p> <ul style="list-style-type: none"> <li>• occurred over last 30-50 years (1)</li> <li>• TNCs have played key role (1)</li> <li>• industrialisation principally in Asia(China &amp; India) (1)</li> <li>• shift is mainly of lower-value products (1)</li> </ul> <p>Up to 2 marks available for factors causing shift e.g. cheap and unregulated labour (1); growing local markets (1); cheap and efficient transport (1); lax anti-pollution regulations (1) ... Where factor well developed into full reason may award 2 marks (1+1) e.g. cheap and unregulated labour (1) lowering costs and increasing company profits (1).</p>	4(1+1+1+1) or 4(1+1)+(1+1)

Question Number		Indicative content
<b>12(c)</b> Type 1 item		<p>Sustainable tourism has economic benefits, social benefits as well as encouraging ecological balance and safeguarding culture. Candidates should have case study knowledge of one sustainable tourism project such as that shown by Figure 12b on the Galapagos Islands. Such attempts to make tourism more sustainable have grown out of the concern for the negative impacts that global mass tourism has been having on the environment, economy and people of destination areas. Ecotourism is the specified form of sustainable tourism and the reasons offered for its development might be :</p> <ul style="list-style-type: none"> <li>• conserve the natural environment</li> <li>• market the appeal of these environments</li> <li>• educate about nature</li> <li>• minimise the tourist impact on environments and communities</li> <li>• maximise local involvement and provide income for local people</li> <li>• cater for smaller numbers of discerning tourists.</li> </ul>
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect a few simple, perhaps random points about sustainable tourism or actual factors/benefits merely identified e.g. conservation; help local people ...
<b>Level 2</b>	3-4	Expect either one reason well explained or a number of causal factors merely outlined. Answer likely to be tentative and incomplete and unbalanced in terms of economic, social and environmental.
<b>Level 3</b>	5-6	Expect clear understanding of the issue with a range of full reasons and detail evident. A balanced response in terms of economic, social and environmental explanation which may also offer examples. There may be recognition of the rationale for its growth out of global mass tourism.

Question Number		Indicative content
<b>12(d)</b> <b>Type 1 item</b>		<p>It is likely that candidates will see this question in the context of international migration flows. However, do not discount internal migration answers where governments attempt to curb the flow of people from say, rural to urban areas or poor to rich regions. In today's more interconnected world it is inevitable that international migration will increase. Modern transport, improved communications, more flows of information, greater more worldwide tourism ... result in greater movement of people. International migration is both a cause and a consequence of globalisation. Examples from sport, business, tourism... are legion. The issue of managing, let alone controlling migration flows as they become larger is problematic. Candidates may refer to internal EU migration (free movement of labour) which grew out of the free trade bloc and to refugees and asylum seekers fleeing conflict close to Europe. The challenge of separating these from economic migrants is significant. Such migration is inevitably into HICs from nearby less well developed nations e.g. Mexico to USA; Africa/Middle East to Europe; Indonesia to Australia and a major challenge facing immigration managers where distance is not great. There may be some reference to students from LICs/MICs studying and staying in HICs after study and the challenge this poses as HIC universities recruit overseas. Attempts to control flows include tighter border controls both materially and administratively, policing and deportation, legal restrictions on immigrant labour, incentives to stay put ... Brexit and Trump's "Mexican Wall" may figure here as may rural development programmes in LICs. Management/control is very challenging and difficult to achieve. Good candidates might offer reasons why e.g. soft entry points to a country; economic gain from migrant workers; compassion for refugees ... Some attempt to evaluate policy and presumably suggest that measures unlikely to be highly effective is sought.</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-3	Expect basic awareness of point of question. Simple, sketchy, random points of a generic nature about the extent and significance of migration in the modern world or the nature of attempts/measures to control migration.
<b>Level 2</b>	4-6	Expect a clear but restricted consideration of some key points about how migration might be managed though response likely to be unbalanced and lacking in depth or breadth. Attempts to raise some migration control measures and the management challenges involved, especially in today's globalised world at top of level.
<b>Level 3</b>	7-9	Expect a coherent, balanced consideration of control measures. The process of easier movement in an interdependent world explicit. Expect some assessment of measures effectiveness/concluding commentary at top of level.

### Question 13 – Development and human welfare

Question Number	Answer	Mark
13(a)(i) Type 3 item	Barking and Dagenham (1)	1

Question Number	Answer	Mark
13(a)(ii) Type 4 item	Key: D Croydon (1) Options A, B and C are distractors; their rank differences are 2, 0 and 1 respectively. D at 3 has the greatest difference.	1

Question Number	Answer	Mark
13(a)(iii) Type 2 item	Award 1 mark for each piece of evidence that variation is great/significant e.g. <ul style="list-style-type: none"> <li>• Kensington &amp; Chelsea 3-4 times average income of rest (1)</li> <li>• Barking &amp; Dagenham unemployment twice that of Kensington &amp; Chelsea (1)</li> <li>• People in Barking &amp; Dagenham live on average 4-5 years less than those in Kensington &amp; Chelsea (1)</li> </ul> Max of 1 mark where rank merely read and extent of variation not addressed i.e. no real use of statistics.	3(1+1+1)

Question Number	Answer	Mark
13(b)(i) Type 2 item	Max marks calls for full, accurate definition e.g. the difference in standards of living/wellbeing (1) between HICs and LICs (1). Partial statement along the right lines = 1 mark e.g. gap in development between richest and poorest countries (1); North-South divide globally (1) ...	2(1+1)

Question Number	Answer	Mark
13(b)(ii) Type 1 item	<p>The item is looking for two significant recent changes to the traditional global development pattern as per Brandt's simple North-South divide e.g.</p> <ul style="list-style-type: none"> <li>• Some LICs rapidly developing (1)</li> <li>• NICs/RICs in Pacific Rim (1)</li> <li>• BRICS (1)</li> <li>• MINT (1)</li> <li>• Emerging economies elsewhere e.g. Persian Gulf (1)</li> </ul> <p>Accept the slowdown in Western Europe/USA since 2007/8 (1) and progress in Eastern Europe inc. "Baltic Tigers" in 21<sup>st</sup> C. (1).</p> <p>Credit each acceptable change up to two identified with 1 mark and award 2<sup>nd</sup> mark in each case where description clarifies why it is a change to existing pattern e.g.</p> <ul style="list-style-type: none"> <li>• BRICS (Brazil, Russia, India, China and South Africa) (1) are now major economies with global influence comparable to most HICs (1)</li> <li>• NICs/RICs around Pacific Rim (1) newly and recently industrialising countries such as Taiwan, Thailand ... have growing economic power (1)</li> </ul>	4(1+1)+(1+1)

Question Number	Answer	Mark
13(b)(iii) Type 1 item	<p>Measuring development is complex. There are a number of key facets to the nature of development - award 1 mark for identification of any of the following up to max of 3:</p> <ul style="list-style-type: none"> <li>• difficult to define (1) e.g. happier ? richer?...</li> <li>• multitude of indicators (1) - which to include ?</li> <li>• difficulties in collecting data/inaccuracies in data (1)</li> <li>• quality of life/welfare/wellbeing versus economic development (1)</li> <li>• inequality means averages distort and ordinary people's life experiences (1)</li> </ul> <p>Max marks calls for reference to outlining/developing at least one facet. Max could be 2 developed facets or 3 identified facets with 1 developed.</p>	4(1+1+1)+(1) or (1+1)+(1+1)

Question Number		Indicative content
<b>13(c)</b> <b>Type 1 item</b>		<p>Foreign aid is the transfer of resources from HICs to LICs e.g. gifts or loans of money, food gifts, assistance with training or materials ... It is one of the key ways in which the UN and governments attempt to narrow the global development gap; some candidates may seek to judge its importance by comparing its effectiveness to that of other ways such as fair and free trade or debt relief. The best aid is often referred to as appropriate aid i.e. know-how and equipment suited to the basic conditions in the recipient country. Candidates should argue that appropriate aid is important e.g. it is effective in accelerating economic growth and poverty reduction in well run economies with sound policies</p> <p>They may refer to case study material, UN and/or NGO aid agency project operations, hopefully to aid of a long-term development nature and appropriate.</p> <p>Some may offer some concerns about aid that could apply to appropriate e.g. poorest countries remain poor despite decades of aid; creates dependency culture in LIC</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-2	Expect a few simple, perhaps random points about nature of appropriate aid or actual benefits merely identified e.g. development; simple water pump in village appropriate (Figure 13b)
<b>Level 2</b>	3-4	Expect either one reason for its importance well explained or a number of benefits merely outlined. Answer likely to be tentative, incomplete and unbalanced in terms of coverage.
<b>Level 3</b>	5-6	Expect clear understanding of the issue of effectiveness and importance with a range of benefits and detail, perhaps appropriate aid case study material evident. A balanced response with explanation and evaluation which may also offer examples. There may be recognition of the shortcomings of even appropriate aid.

Question Number		Indicative content
<b>13(d)</b> <b>Type 1 item</b>		<p>This is a specified case study question. Expect one of three types of population management programme :</p> <ul style="list-style-type: none"> <li>• reduction of the population growth rate</li> <li>• encouragement of population growth</li> <li>• coping with an ageing population and high dependency levels</li> </ul> <p>Population reduction policies e.g. family planning and birth control may be the most common responses, including the former one-child policy in China. Good answers may refer to encouraging female education and raising the status of women in LICs with high rates of population growth. Increasing population growth rate e.g. Singapore’s “love cruises.” Child benefits paid and maternity leave in France. Ageing population management provides a fruitful case study e.g. UK - increase pension age; expand geriatric care; fund health care; attitude to immigration; adapt public transport and car parking for elderly ...</p> <p>Policies need to be fit-for-purpose i.e. in line with the issues posed by the population change. Good answers will evaluate in this way and include concluding comments about the extent to which change is being influenced by management/government policy.</p>
Level	Mark	Descriptor
<b>Level 1</b>	1-3	Expect a basic awareness of the population change to be managed and some simple, sketchy points about management/government policy. Answers may be generic without reference to a named country.
<b>Level 2</b>	4-6	Expect some valid comments about population change in named country (max of 5 marks for generic responses about anywhere) with some consideration of the policy measures partial and unbalanced. Some breadth or depth to answer.
<b>Level 3</b>	7-9	Expect a good understanding of the issue of managing population change. Answer has good range and/or depth in terms of the nature of the population change and the measures to manage them offered in an evaluative way. Case study material set in a named country expected.