

2013 Geography

Higher Paper 1

Finalised Marking Instructions

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Part One: General Marking Principles for Geography Higher Paper 1

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

- (a) Marks for each candidate response must <u>always</u> be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor.
- (b) Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

GENERAL MARKING ADVICE: Geography Higher Paper 1

The marking schemes are written to assist in determining the "minimal acceptable answer" rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates' evidence, and apply to marking both end of unit assessments and course assessments.

- **1.** The maximum mark for Paper 1 is 100. Markers are encouraged to use the whole range of marks and to give a high assessment for an answer of high quality.
- 2. The total marks assigned by you for each complete question should be entered in the outer right-hand margin of the answer book. When a question consists of more than one part, the marks assigned to each part MUST BE SHOWN SEPARATELY in the column provided on the inner right-hand side of the book.

It is of great importance that the utmost care should be exercised in adding up the marks. Where appropriate, all summations for totals and grand totals must be carefully checked. Where a candidate has scored zero marks for any question attempted "0" should be shown against the answer.

- **3.** It is helpful in later procedures if points receiving marks are clearly indicated. In general a mark should be awarded for a correct statement.
- 4. All mistakes MUST be underlined in red pen. A wavy line (~~~~~) should be used for something that is not quite right, a single line (-----) for mistakes which, though not very serious, are undoubtedly wrong, and a double line (======) for gross blunders. These corrections are valuable when borderline cases and appeals are being considered. Where a page shows neither a correction nor a mark, a red tick MUST be placed at the bottom right-hand corner

- 5. The marker should take the candidate's answers strictly as they are written; no attempt should be made to read into answers ideas which the candidate may have intended to convey but which have not been successfully conveyed. A caret (λ) should be used to indicate an important omission. A question mark (?) should be used to indicate that the marker cannot understand the meaning intended. The letter "R" should be used to indicate that the candidate is repeating something already stated in the answer.
- 6. Care should be taken that no credit whatsoever is given to irrelevant parts of answers, however accurate the irrelevant passages may be. Irrelevant passages should be square-bracketed []. It should be noted, however, that a fact or argument which is irrelevant in one candidate's answer may be made quite relevant by another candidate who has the

ability to connect it to the question

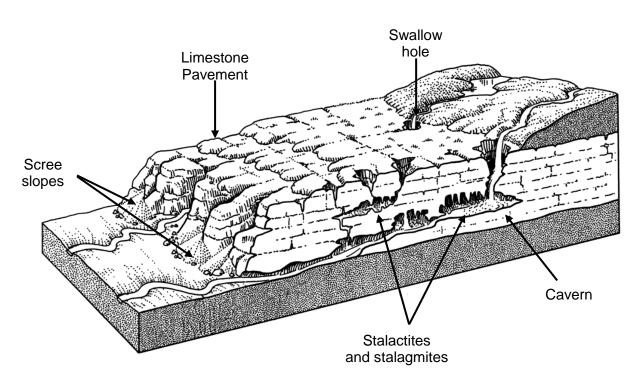
Part Two: Marking Instructions for each Question

Question 1 Lithosphere

Qu	estio	n Expecte	ed Answer/s	Max Mark
1	а	system in the Yorkshire Dales, an features. Select one surface and one under	typical surface landscape and cave area with Carboniferous Limestone ground feature from the lists below. on of both features. You may use an your answer.	12
		Surface Features	Underground Features	
		Limestone pavement	Stalactites and stalagmites	
		Swallow hole	Cave/Cavern	
		 penalty of one mark for each feature named example. Surface feature – Limestone Pavem areas of bare limestone scraped limestone surface exposed to ch joints formed in limestone as it d lines of weakness prone to chemilimestone is dissolved by rainwar deep gaps (grykes) and blocks (a from the original horizontal bedd credit solution and biological action found in cavern systems where use found in cavern systems where use is depositing crystalline lime is stalled lime is deposited on the floor and features are called dripstone depositing crystalline lime is and up to 2 marks can be credited for excarboniferous limestone. 	ation must be covered or there will be a Award up to one mark for a correctly ent clear of soil and glacial drift emical weathering ried out or as pressure was released hical weathering called carbonation. The ter (weak carbonic acid) clints) make up the distinctive landscape ing plane vity s and stalactites underground water is rich in lime hts and bedding planes as the rock is rm from dripping water which evaporates actites d is more rounded ie stalagmites bosits stalagmites meet eplaining the general formation of	
		Avoid double-crediting explanation of Full marks could be awarded for wel		

Qu	estic	n Expected Answer/s	Max Mark
1	b	Scree slopes are often found at the bottom of cliffs or scars typical of Carboniferous Limestone landscapes. Explain the processes involved in their formation.	6
		Assess out of 6 for explanation	
		 Conditions and process which encourage the formation of scree slopes will include: steep and bare rock faces well jointed rock face with lines of weakness cold climate where temperatures often fall below freezing at night freeze-thaw action or frost shattering water collects in cracks and freezes and expands by 9% exerting pressure on rock repeated freeze-thaw action splits rock into large sharp fragments fragments break off and move downhill by gravity accumulate at the base of a cliff as scree or talus slope grading of scree material upwards from larger to smaller due to weathering 	

Diagram Q1: A Typical Carboniferous Landscape



Question 2 Atmosphere

Qu	Ruestion Expected Answer/s		Max Mark	
2	a		Study Diagram Q2A and Q2B. Describe and explain why the Earth's surface absorbs only 50% of the solar energy received at the edge of the atmosphere. You should refer to both conditions in the Earth's atmosphere and at the Earth's surface.	8

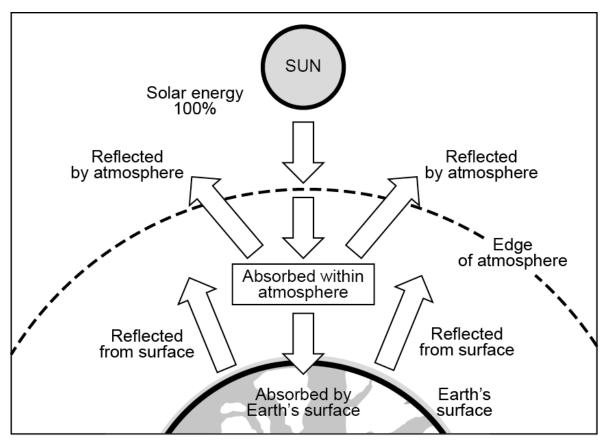
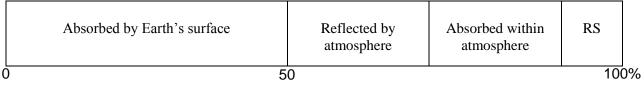


Diagram Q2A: Earth/Atmosphere Energy Exchange

Diagram Q2B: Proportion of solar energy absorbed/reflected



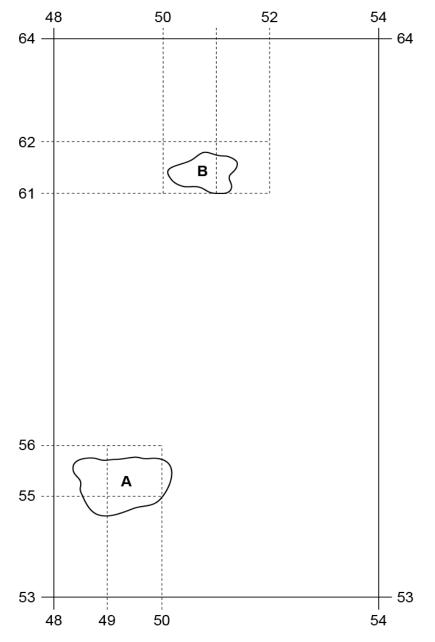
RS= Reflected from surface

Qu	esti	on	Expected Answer/s	Max Mark
2	а		(cont)	
			Assess out of 8 marks with a maximum 3 for descriptive lifts from the diagram, and a further 2 marks for further data <i>not</i> from the diagram. Candidates should explain both the term reflection (from the Earth's atmosphere and surface) and absorption within the earth's atmosphere.	
			Reflection and scattering reduces the amount of solar energy by about 30%. This is known as the albedo effect. Approximately 20% is reflected by clouds, 5% is scattered by gas particles in the air and 5% is reflected from the earth's surface. Reflection therefore varies dependent on cloud cover and also the covering at the earth's surface as darker forest surfaces absorb more radiation than snow and ice surfaces which reflect more of the incoming radiation. The spatial variation is emphasised by equatorial forests and polar ice caps. Absorption by the atmosphere reduces the solar energy by (20%), through clouds (3%) and by dust, water vapour and other gases (approx. 17%)	

Qu	estic	n Expected Answer/s	Max Mark
Qu 2	b	 There has been an increase in the average global temperature in the last 150 years. Describe and explain the human factors affecting global warming. Assess out of 10 marks with a maximum of 2 marks for describing/explaining the greenhouse effect and maximum seven marks for either description or explanation. Award 1 mark for correctly identifying each greenhouse gas and up to 3 marks for its sources. Credit mention of differences in global warming potential between various greenhouse gases. Do not credit physical causes of global warming. Carbon dioxide: from burning fossil fuels – road transport, power stations, heating systems and from deforestation (particularly in the rainforests) and peat bog reclamation/development (particularly in Ireland and Scotland for wind farms). CFCs/PFCs: from aerosols, air-conditioning systems, refrigerators, polystyrene packaging, production of aluminium, etc. Methane: from rice padis, landfill sites, (almost half of UK's methane emissions), animal dung, oil exploration, permafrost melting in tundra areas and belching cows. Nitrous oxides: from vehicle exhausts and power stations. 	
		NB there were 6 man-made greenhouse gases included in the Kyoto protocol (Carbon Dioxide, Methane, Nitrous Oxide, Hydro fluorocarbons, PFCs and Sulphur Hexafluoride). Many of these are more powerful as greenhouse gases than CO2.	

Question 3 – Urban

Qu	Question Expected Answer/s		Max Mark	
3		Study OS Map Extract number 2006/OL20: Plymouth (<i>separate item</i>), and Map Q3.	12	
		Using map evidence, describe the residential environments of Area A and Area B. Suggest reasons for the differences.		



Map Q3: Location of residential areas in Plymouth

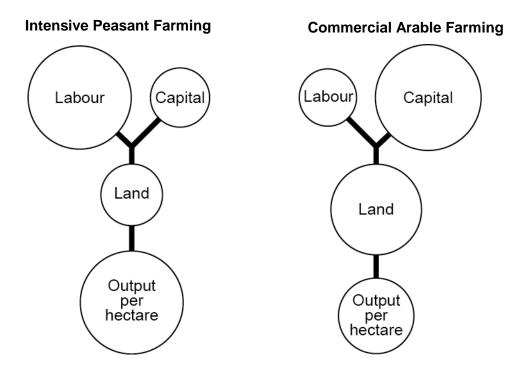
Que	estion	Expected Answer/s	Max Mark
	a	 Assess out of 12 marks, with a maximum of 8 overall if no reasons are offered. Allow up to 3 marks for appropriate grid references or map evidence (as in road names). within the 8 possible marks for description. The following characteristics may be noted: Area A Grid iron street patterns Terraced housing Older (19th century) development, next to CBD, inner city Lack of open space Main roads nearby – B3238 More churches – 496552, 494554 Railway lines nearby near to industrial area at port – 493537 Area B Cul-de-sacs, curvilinear street patterns with crescents 	

Qu	esti	on	Expected Answer/s	Max Mark
3			Suggest the impact that an out of town shopping centre may have had on the traditional Central Business District (CBD) of Plymouth or any other named city you have studied in a developed country.	
	b		Assess out of 6. Credit can also be given (up to a maximum 2 marks) for appropriate and relevant named examples.	6
			 The likely impact of a new out of town regional shopping centre could include references to such points as: loss of custom for shops loss of customers for other services such as cinemas and restaurants consequent closure of shops/services and dereliction/empty properties relocation of shops and services to the new site probable revitalisation of traditional shopping streets in the city centre in order to compete/'keep up' changes to local planning controls, initiatives to bring back customers to the CBD. loss of council revenue from services e.g. car parks. 	

Question 4 – Rural

Qu	estior	Expected Answer/s	Max Mark
4		Study Diagram Q4. Choose one of these farming systems. Referring to a named area where your chosen system is carried out:	

Diagram Q4: Farming systems



Que	estic	on	Expected Answer/s	Max Mark
4		i	explain the ways in which the diagram reflects the main features of your chosen system;	8
			Assess out of 8 with a maximum of 2 for descriptive points. Award a maximum of 7/18 overall if no named area is mentioned. Credit up to 3 marks for specific named examples within the area across both parts of the question.	
			 Intensive Peasant Farming Traditional high labour input although this is beginning to decline as poorer farmers are forced off the land Small capital input although this is increasing with amalgamation of uneconomic holdings and increased use of machinery Small parcels of land but this is also increasing with amalgamation Large output due to intensive nature of system with maximum use of land available. 	
			 Commercial Arable Farming Labour force small and declining with increased use of large machines as agribusiness takes over from family farms High input of capital, used for machinery, irrigation, pesticides, fertilisers and infrastructure Very large areas of land required for effective operation of large farm machinery Large output is related to huge area involved rather than particularly high output per hectare. 	
4		ii	describe the recent changes in farming practices that have taken place and discuss the impact of these changes on the people and their environment.	10
			Assess out of 10 marks. Credit must be awarded for changes in farm practices not for mere description of the farming system. Wrong farming system, 0 marks.	
			Descriptions might include:	
			Intensive Peasant Farmingimproved irrigation	
			 increased farm sizes and larger fields – amalgamation of small uneconomic holdings and consolidation of fragmented fields as a result of land reform greater use of modern posticides and fortilizers 	
			 greater use of modern pesticides and fertilisers increased mechanisation – the use of mini-tractors (rotovators) and small mechanised rice-harvesters instead of draught animals 	
			 The widespread adoption of higher yielding/faster maturing new varieties of rice – the impact of the 'Green Revolution' 	
			 'green revolution' type changes eg development of hybrid seeds use of appropriate technology 	
			 use of appropriate technology increasing export of farming produce The formation of farming co-operatives. 	

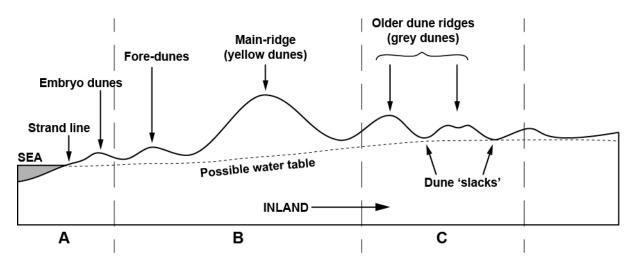
Qu	estio	Expected Answer/s	Max Mark
Qu. 4	i	 (cont) Commercial Arable amalgamation of farm holdings as family farms are taken over by agribusiness part time farming and co-operatives have increased greater use of contractors for harvesting diversification of crops away from wheat to eg sunflowers as markets change increase in organic farming increased use of more carefully managed irrigation schemes increased awareness of soil conservation methods The impact of these changes might include: Intensive Peasant Farming greater amount of food has reduced malnutrition and starvation surplus crop may be sold, improving quality of life increased mechanisation may lead to reduction in farm labour migration of farms may also lead to larger fields, increased mechanisation and drift to cities improved infrastructure including increased electrification and better roads improving access to markets co-operatives have provided farmers with several benefits, easier access to machinery, cheaper credit facilities, bulk purchasing of inputs and improved marketing opportunities a shift from subsistence farming towards more commercial farming with small surpluses for sale increased use of insecticides, pesticides and fertilisers may impact on the environment and humans. 	
		 a shift from subsistence farming towards more commercial farming with small surpluses for sale increased use of insecticides, pesticides and fertilisers may impact on the environment and humans. Commercial Arable Farming 	
		 wider range of crops means the endless expanse of crops is a less common sight on the Great Plains the diversification of cropping has helped secure income as have cooperatives (economies of scale from cooperatives) planting of eg sunflowers as part of strip cropping has decreased soil erosion increase in organic farming has meant eg less algae in some local rivers. 	

Question 5 – Hydrosphere

Qu	estion	n Expected Answer/s	
5		Study OS Map Extract number 2006/OL20: Plymouth (separate item).	
	а	Using appropriate grid references, describe the physical characteristics of the River Plym and its valley from Bickleigh Bridge (GR 527618) to Laira Bridge (GR 501542).	8
		Assess out of 8. Award up to 2 marks for appropriate grid references/names. Each river or valley feature should be credited only once. Award a maximum of 7/8 if no reference to valley.	
		Description could include:	
		Lower course section of river	
		Narrow valley 5261Meanders eg 519607	
		 tributaries/confluences, (eg River 519567) 	
		 braiding/islands (eg 522587), pond (NOT ox-bow lake) at 520586 	
		• river cliff (524597)	
		Widening valley – flat floodplain 518584	
		References to the height of the land, steepness of the valley sides	
		 direction of flow southerly Credit append of river if linked to map evidence 	
		 Credit speed of river if linked to map evidence tidal limit at 518571 	
		 Mudflats at mouth, 514558 	
5	b	Explain, with the aid of an annotated diagram or diagrams, how a meander is formed.	6
		Assess out of 6. The explanation should include 6 points, all of which could	
		be included in a well annotated diagram.	
		A maximum of 3 marks should be given for river processes eg solution,	
		attrition, abrasion and hydraulic action. Credit should not be given for development into ox-bow lakes. Answers	
		without diagrams should be marked out of 4.	
		Points could include:	
		 Development of pools and riffles (differences in speed and depth) 	
		 Erosion on the outside (concave bank) of bends due to faster flow forms river cliffs 	
		Helicoidal flow removing material	
		 Deposition on the inside (convex bank) due to slower flow, formation of point bars/river beaches 	
		Migration of meanders downstream	

Question		on	Expected Answer/s	Max Mark
6			Study Diagram Q6 which shows a coastal sand dune area.	

Diagram Q6: Transect across sand dune coastline



Qu	Question		Expected Answer/s	Max Mark
6	а		Describe and give reasons for the plant types likely to be present at one of the locations A, B or C. Named plant species should be included.	6
			Assess out of 6 awarding a maximum of 2 marks for correctly named examples of plants in chosen area (one mark per stage). For full marks, description and explanation needed.	
		Α	Strandline: Likely plant types include Sea Sandwort, Sea Rocket, Saltwort. Salt tolerant species, able to withstand dessicating effects of the sand and wind.	
			Able to cope with periodic immersion in sea water. Have also to adapt to alkaline conditions (high pH) because of high concentrations of shell fragments along the shore.	
			Embryo Dunes: Examples of plants such as Sand Couch, Lyme Grass, Sea Rocket. These pioneer species grow side / lateral roots and underground stems called rhizomes which bind the sand together. These grassy plants can also tolerate occasional immersion in sea water.	
		в	Fore Dunes: Examples of plants such as Sea Holly, Sea Bindweed, Sand Sedge.	
			Slightly higher humus content from decayed plants and lower salt content (further from the sea) allows these species to further stabilise the dune and allow the establishment of Marram Grass which becomes a key plant in the build up of the dune.	
			Main ridge (Yellow Dunes): mainly Marram Grass and Sea Lyme Grass but also Sand Fescue, Sand Sedge, Sea Bindweed and Ragwort. Both humus content and soil acidity have increased at this point. Being xerophytic, Marram Grass thrives on the drier mobile sands and becomes the dominant species, aligning itself with the prevailing wind to prevent moisture loss / reduce transpiration and can keep pace with being buried under deposits of sand thanks to its long, creeping rhizomes spreading laterally and vertically.	
		С	Grey Dunes: Plants often present include: Bird's Foot Trefoil, lichens, mosses, heather, Sea Buckthorn. Marram Grass dies back, contributing humus. As a result of leaching and the build up of humus, the soil is considerably more acidic and damper, allowing a wider range of plant species to grow in this more sheltered location.	
			Dune slacks: Reeds and Rushes, Cotton Grass, small Willows and Alders. The damp, low-lying hollows have a much higher water-table, especially in winter and support a hydrophytic (water tolerant) vegetation cover. Increased organic matter, shelter from the dune ridge in front and, being further inland, a less saline environment also contribute to a wider range of plants. As a result of water logging and the build up of humus, the soil is also more acidic.	

Question		Expected Answer/s	
6	b	 Draw and fully annotate a soil profile of a brown earth soil to show its main characteristics (including horizons, colour, texture, soil biota and drainage) and associated vegetation. Assess out of 8, deducting 2 marks if no annotated profile present. Maximum 6 marks for a 'ladder' type diagram (with A, B and C horizons) and separate text. Annotations could include: Dark brown A horizon with thick black layer of mull humus and loamy texture Abundant leaf litter from deciduous woodland Lighter brown in upper B horizon with some staining from organic matter above Dark brown/red brown in lower B horizon Presence of soil biota eg earthworms Well drained but an iron pan may be present in the B horizon caused by moderate leaching Indistinct horizon boundaries – presence of organisms vertically mixing soil Clay particles in C horizon above the bedrock 	8 8

Question 7 – Population

Question		on	Expected Answer/s	Max Mark
7			Study Diagram Q7A	

Diagram Q7A: Population Pyramid for Malawi, 2010

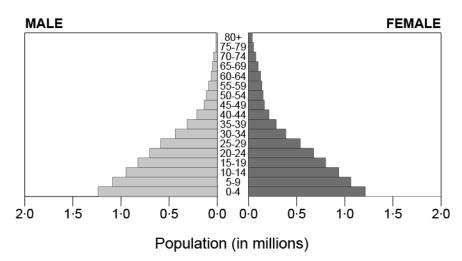
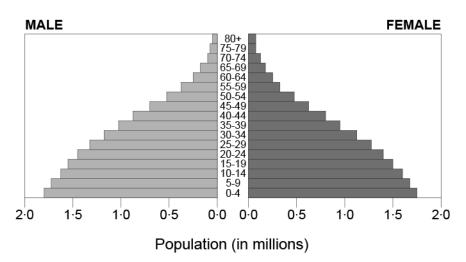


Diagram Q7B: Projected Population Pyramid for Malawi, 2050



Qu	Question		Expected Answer/s	
7	а		Describe and explain the population structure of Malawi in 2010.	8
			Assess out of 8 marks with a maximum of 5 marks for either description or explanation. Allow up to 2 marks for direct use of descriptive statistics from the pyramid.	
			 Description could include: high birth rate, shown by the broad base and high percentage in the younger age groups high death rate, shown by the rapidly narrowing pyramid low life expectancy and high infant mortality rate relatively small economically active population between 15 and 65 age groups 	
			 Explanations could include: high birth rate due to lack of family planning, contraceptives and sex education HBR also due to a need for large families to help in farming and also due to the high infant mortality rate, lack of education for girls High death rate will be due to high infant mortality, occurrence of 'killer' diseases like malaria High levels of HIV/Aids HDR due to malnutrition causing susceptibility to disease HDR due to poor medical availability Lack of clean water and sanitation 	

Qu	estio	Expected Answer/s	
7		Study Diagram Q7B.	
	b	Discuss the possible consequences of the 2050 population structure for the future economy of Malawi and the welfare of its citizens.	6
		Assess out of 6 marks.	
		 Consequences on the economy might include: positives from an increased economically active population providing a healthy work force the more likely negatives will include increasing population leading to increased unemployment and a greater need to borrow money and increase National Debt a greater reliance on overseas aid less surplus produce available to sell abroad Consequences on the welfare of the citizens: positives from population living longer and being healthier eg fitter and more effective workforce rural migration to towns to find work pressure on larger towns to accommodate rising population which may lead to growth of shanty towns rising population will lead to pressure on services like sanitation, schools and hospitals rising population may lead to pressure on food supplies leading to increased malnutrition and disease lack of work may lead to increased emigration to neighbouring countries or overseas rising population may put pressure on all resources eg. fuel, building materials etc. 	
		Candidates should be given credit for other relevant consequences not noted above	

Question 8 – Industrial Geography

Questio	n Expected Answer/s	Max Mark
8	Study photographs Q8A, Q8B and Q8C. "New" industry is often located in industrial estates, business parks and science parks. Referring to a named industrial concentration in the European Union that you have studied:	

Photograph Q8A



Photograph Q8B



Photograph Q8C



Question		Expected Answer/s	
8	i	 describe and explain the main characteristics of a typical new industrial landscape; Award a maximum of 13/14 overall in no named area mentioned in either section. Assess out of 7 allowing up to 4 marks for description. Main characteristics that might be included in a description/explanation of a 'new' industrial landscape. Lower, smaller, modern buildings – mostly single storey and often with large windows to allow in plenty of light. Buildings are well planned/spaced out with trees and grassy areas and even ornamental lakes/ponds included in the layout to provide a more attractive working environment and create a favourable image to prospective investors/clients. Usually located on purpose-built industrial estates or Science/Business Parks commonly on Greenfield sites on the edge of towns/cities where land is relatively cheap and there is room for car parking and for future expansion. Usually close to major roads such as dual carriageways or motorways for ease of transport of the finished products to markets/ports, for bringing in raw materials/component/sub-assemblies and for the convenience of to-day's more mobile, car-owning workforce. Similar sorts of industries/firms in similar looking buildings often locate on the same site to benefit from an exchange of ideas and information. Many of these businesses are connected with information, high technology and electronics industries and will have direct links with universities (often situated close by) for research and development purposes and to remain successful and competitive. 	7

Que	stion	Expected Answer/s	
Que 8	ii	 describe ways in which the European Union and national governments have helped to attract new industries to your chosen area. Assess out of 7 marks, allowing up to 2 marks for appropriate named examples within their named area and up to 5 marks for either national governments or EU measures. Answers will vary and will be determined by the industrial concentration chosen. For South Wales, steps taken to attract new industries and inward investment might include: National Government creation of Enterprise Zones (Swansea, Milford Haven) and their associated benefits designation of Development Area status for old coal mining areas setting up of Welsh Development Agency (WDA) in 1976, to attract high quality investment into Wales Urban Development Corporation (UDC) in Cardiff and its associated benefits Improved infrastructure – the Heads of the Valleys Road construction of New Town, Cwmbran 	Max Mark
		 relocation of specific government offices, eg DVLA in Swansea encouraging inward investment from abroad, eg Sony, Bosch, Lucky Goldstar European Union E.U. (creation of EU itself provides huge European market for goods) joining EU opens up a huge source of funds available to outlying areas – ERDF (European Regional Development Fund), EIB (European Investment Bank), ESF (European Social Fund) etc and their associated benefits Cohesion Fund – aimed at states whose Gross National Income (GNI) is <90% of EU average 	

[END OF MARKING INSTRUCTIONS]