Version 1.0: 0306

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Geography 5036
Specification B

GGB2 The Physical Options

Mark Scheme

2006 examination – January series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

GENERAL GUIDANCE FOR GCE GEOGRAPHY ASSISTANT EXAMINERS

General Instructions to Examiners on Marking

It is important that every Examiner marks the scripts to the same standard as the rest of the panel. All Examiners must operate the Marking Scheme in a similar and consistent manner, and hence, they must all participate in the application of that scheme at the Standardisation Meeting. In particular they should take careful note of all decisions taken or changes made at the meeting. Examiners are allocated to a Team Leader for the period of examining, and any difficulties that arise should be discussed with that person.

The Marking Scheme

The Marking Scheme consists of two sections for each question or sub-question – the Notes for Answers and the Mark Scheme itself.

Notes for Answers (NFA)

These indicate the possible content for the various sections of the question paper. In some cases (for example short answer questions) the NFA may indicate the only response that is acceptable, but in many cases they indicate either a range of suitable responses, or an exemplar of the type of response required. Therefore, in most cases the NFA do **not** provide model answers, and should not be regarded as such. More NFA may be added at the standardisation meeting if it is felt by the Principal Examiner that details of appropriate ways of answering the question have been omitted.

The Mark Scheme

This is provided in italics and provides the instructions to Examiners as to how they are to assess the work of candidates. The number of marks allocated within the mark scheme to a question should correspond to the number of marks for that question on the question paper.

There are two ways in which the Mark Scheme operates:

(a) it indicates how the marks to short answer questions are to be allocated – usually to a maximum of 4 marks.
(b) it indicates how Examiners should move through the Levels in a level response mark scheme – usually to all questions of 5 marks or more. Each Level has a levels descriptor, with clear statements of the "triggers" to move candidates from one level to another. Each Level contains a range of marks as shown on the Mark Scheme.

A number of features have been used to distinguish between Levels, for example:
- a number of characteristics, reasons, attitudes etc.
- the degree of specification, for example the use of specific case studies, or accurate detail
- responses to more than one command word, for example, describe and suggest reasons
- the degree of linkage between two aspects of the question
- the depth of understanding of a concept.

The Marking Process

A sample of an Examiner's marked scripts will be marked again by a Senior Examiner according to the procedures set out by the Board. Also the scripts may be re-examined at the Awards Meeting and the subsequent Grade Review. Therefore, it is most important that Examiners mark clearly according to the procedures set out below.

- All marking should be done in red.
- The right-hand margin should be used for marks only.
- The overall mark for a question must be ringed at the end of the answer.
- The total mark for the question must be transferred to the front of the script.
- The left-hand margin is where an indication of the level achieved is written.
  Comments and codes (see below) may also be written on the left.
- Indications of the levels achieved may also occur in the body of the answer if this is easier for the Examiner to apply (e.g. in the marking of diagrams).
- Ticks should be used for short answer responses and Level I responses only, with one tick representing one mark (to the maximum allowed in a Levels scheme).
- Levels II, III and IV should be indicated with a Roman II, III or IV on the script, and this symbol should be used each time this Level is achieved. Examiners may wish to bracket an area of text where this level of response has been achieved.
- Once a candidate has reached Level II, additional Level I credit should be indicated using a + symbol. If these points are of sufficient quality **one additional mark** can be awarded (assuming no further Level II points are made).
- Examiners may indicate strong Level II or III material by writing "Level II (or III) – "good" in the left hand margin of the script. The Examiner should ensure that this is reflected in the **awarding of an appropriate number of marks** at the end of the answer.
- Level III is to be used only for questions of 9 marks or more, and Level IV is to be used only for questions of 25 marks in total.

Other Mechanics of Marking

- Underline all errors and contradictions.
- Cross out irrelevant sections using a line from top-left to bottom right. (However, be careful to check that there is no valid material, however brief, in the mass of irrelevance).
- Indicate repeated material with "rep".
- Other useful marking codes can be used, for example, "va" for vague, "NQ" or "Not Qu." for failure to answer the question, "Irrel" for irrelevant material, and "SIF" for self-penalising material.
- Put a wavy line in the left-hand margin to indicate weak dubious material.
- If the rubric is contravened, mark all answers but count only the best mark towards the candidate's total mark for the script. Put the mark for the question on the front of the script in the usual way, but also write "RAM Rubric" on the front of the script.
- Large areas of text must not be left blank – use the wavy line or write "seen" alongside the text. All pages must have an indication that they have been read, especially supplementary sheets.
- Unless indicated otherwise always mark text before marking maps and diagrams – do not give double credit for the same point made in the text and a diagram.

Triggers and some level descriptors

- Named feature, named example, named location = level 1
- Described feature = level 2
- Accurate quantitative description, correct location of plant species = 2 times level 2 max
- Named process = level 1
- Process + effect = level 2
- Process explained = level 2
- Explained process + effect = good level 2
- Explained process + effect described = very good level 2

Quality of Language Descriptors

The following descriptors concerning the quality of language must be applied to **all** questions in which candidates are required to produce extended writing. To attain full marks available at a level of response, the appropriate Quality of Language descriptor must be achieved. Use the same quality of language levels as are used in the geographical element of the mark scheme under consideration.

Three-level descriptors

LEVEL I	• Style of writing is suitable for only simple subject matter. • Expression of only simple ideas, using a limited range of specialist terms. • Reasonable accuracy in the use of English.
LEVEL II	• Manner of dealing with subject matter is acceptable, but could be improved. • Reasonable clarity and fluency of expression of ideas, using a good range of specialist terms, when appropriate. • Considerable accuracy in the use of English.
LEVEL III	• Style of writing is appropriate to subject matter. • Organises relevant information and ideas clearly and coherently, using a wide range of specialist vocabulary, when appropriate. • Accurate in the use of English.

Two-level descriptors

LEVEL I	• Manner of dealing with subject matter is acceptable, but could be improved. • Reasonable clarity and fluency of expression of ideas, using a good range of specialist terms, when appropriate. • Considerable accuracy in the use of English.
LEVEL II	• Style of writing is appropriate to subject matter. • Organises relevant information and ideas clearly and coherently, using a wide range of specialist vocabulary, when appropriate. • Accurate in the use of English.

Question 1

(a) (i) A – Lateral moraine; scree; valley sidewall; truncated spur
B – Terminal/recessional/end/push moraine; snout
C – Proglacial Lake/meltwater/lake/ribbon lake
D – Snow field/hanging valley/tributary glacier/ /corrie glacier/corrie

One mark for each correct answer. **(0-4 marks)**

(ii) **Plucking** occurs in areas where there is weathered rock in contact with the ice. Meltwater from the glacier trickles into the weathered rock and re-freezes. This weakens the rock further, and when the ice moves it pulls the rock with it. Occurs on the side/backwall
Abrasion is the 'sand-papering' effect that occurs at the base of a glacier. Rocks embedded in the base of the ice are dragged across the rock surface wearing, sandpapering/scraping etc. the rock. Abrasion is most effective in temperate glaciers where there is some meltwater at the base of the ice, which enables the ice to move. Also, the thicker the ice the more effective the process. Larger rocks are more effective. Small debris smoothes and polishes.

For each: 1 mark for each valid comment. **(0-4 marks)**
If a complex link is made then credit both sides of the link. **(0-4 marks)**

(iii) Depends on the landform chosen.

Corrie: Armchair shaped hollow with a steep back wall. Hollow is over-deepened and could have a rock lip. Diameter 0.5km – 1km; back wall/depth 100m – 400m. Back wall angle 60°, only vertical in parts.

Arete: Steep, knife-edged ridge, separates two corries or troughs. Length 2km maximum; height 700m maximum.

Glacial trough: Steep sided (rarely vertical) often straight, deep valley with a flat floor. Length 1km – 50km, width 0.5km – 3km.

Roche moutonee: lump of resistant rock that is found on the floor of glacial valleys. It is asymmetrical with the steep side pointing downstream. Upstream side can be polished and striated. Lee side is very jagged. Height 1m – 10m; length 3m – 30m.

Crag and tail: large feature. Length 1km – 7km, height 20m – 50m. Steep bare rock upstream side, with gentle downstream side made of till.
Hanging Valley; Pyramidal Peak

Level 1 **(0-3 marks)**
Simple description of the chosen feature, using generalisations (e.g. steep, high, deep etc.), named example.

Level 2 **(4-6 marks)**
Detailed description of the chosen feature. 2 level 2 quantification maximum.

(b) (i) Stoss/steep end; Lee/gentle end; Shape showing highest point nearer to stoss; Direction of ice flow; Poorly sorted; Clays to boulders; till; Field location; swarms; 25 – 600m wide; 15 – 60m high; 50 – 1500m long; elongation ratio 2:1 to 4:1;
Correct labels. Labels include, stoss, lee, direction of ice flow. Type of material. Correct dimensions etc. 3 max **(0-6 marks)**

(ii) Moraine is the collective name for debris that a glacier transports and eventually deposits. Made up of angular/unsorted and unstratified material.
Depends on the type of moraine chosen. Lateral M is found along the edges and is orientated parallel to the ice; Medial M is found on the valley floor away from the edges and is also parallel to the direction of ice flow. End M of all kinds is found across the valley floor. Often it takes the shape of the snout of the glacier from which it was deposited. Ground moraine is found on land that had been covered by ice, but is thicker towards the snout of the glacier or ice sheet.

Level 1 **(0-3 marks)**
Simple description of chosen moraine(s) or generic description of moraine.

Level 2 **(4-8 marks)**
Detailed description of chosen moraines (2xL2Q maximum). Explanation of the formation both moraines at L2 to gain maximum.

(iii) Moraine is more angular and less well-sorted. At the coarse end, it is much coarser than any F/G deposits, similarly the finest rock flour is usually too fine to be deposited by the meltwater streams. Locations of the deposits are also important with F/G generally found beyond the limit of the ice while moraine never is.

Level 1 **(0-2 marks)**
Simple description of either the size, shape or location of moraine and/or F/G deposits. Simple differences.

Level 2 **(3-5 marks)**
Detailed differences between moraine and F/G deposits.

(c) Depends on the feature chosen by the candidate.
Outwash plain deposits are those brought out of the glacier by meltwater streams. The streams are highly energetic and so are able to carry a large amount of material in them. Their competence is high and so there is a range of sizes. As the streams emerge from or off the ice they encounter increased friction and so slow down. Their competence is reduced and the largest material is deposited first, the finer being taken a long way down the stream. This produces well sorted deposits. The stream usually becomes braided. The discharge of water is seasonal and so there are also graded deposits. Length 5km – 80km; depth 1m – 75m; gradient 0.5° - 4°.
Kettle holes are formed when a glacier is melting and a piece of ice is isolated from the rest of the glacier. It is buried by outwash debris. It subsequently melts and the resulting subsidence causes a small hollow in the outwash plain. Diameter 5m – 100m; depth 1m – 5m.

Esker is a sinuous ridge that is found running parallel to the pre-existing glacier. Height 5m – 20m, width 10m – 50m. It is composed of sorted sands and gravels that are sub-rounded to rounded. It can be stratified though post-glacial slumping can disturb this. Formed from the deposits of sub-glacial streams. Can be beaded.
Kame: mounds of sorted sands and gravels. Maximum width 50m, height 3m – 5m. Formed either along the front of a stationary glacier where a stream emerges from under the ice and rapidly loses energy, or by deposition in a cavity in a glacier.
Varve: 1mm – 20cm. Alternating layers of sediment deposited in a proglacial lake. Coarser sediment deposited in late spring and summer, finer sediment in winter when there is a low supply of meltwater.
Kame Terrace

Level 1 **(0-3 marks)**

Simple description of the chosen landform with detail of the morphology, scale, field relationships or deposits, (i.e. simple = 1 adjective). Simple explanation. Name of landform

Level 2 **(4-8 marks)**

Description of the feature with more than one aspect of the above or a detailed description of the feature. Simple explanation for the shape, size or location of the landform. Maximum 2 quantitative points. There must be at least one L2 explanation to get to the top of this level. (Annotate E).

(d) This depends on the landform chosen. Any landform which could occur in Periglacial areas would be valid.
These include:
Patterned ground (stone polygons [including garlands and stripes] or ice-wedge polygons);
Felsenmeer; tors; scree; solifluction terraces; ice wedges; nivation hollows; assymetrical valley profiles.
Stone polygon: 0.5m – 10m diameter; dome height 0.1 – 1m.
Elongated polygons: 2 – 6°, stripes 6 – 35°.
Ice wedge polygon and wedges: diameter 5 – 50m; depth 10m; thickness 0.5 – 20m.
Scree: slope 30 - 35°. Angular material.
Nivation hollow: 5m to 1km diameter, 2 – 20m depth.
Pingo: 50 – 500m diameter, height 10 – 60m.

Level 1 **(0-2 marks)**

Simple description of chosen feature. Name of relevant landform.

Level 2 **(3-5 marks)**

Detailed description of named landform. 2 x L2 Q maximum.

OPTION Q: COASTAL ENVIRONMENTS

Question 2

(a) (i) A – Wave cut notch/discoloured rock/bedding plane (only allow once);high tide mark.
B – Cave/arch.
C – Wave cut (shore)/rock platform. Flat rock
D – Cliff; fretted rock; steep rock face; bedding plane; horizontal rock.

One mark for each correct answer. **(0-4 marks)**

(ii) Abrasion. The waves pick up stones and hurl them at the cliff face. This leads to undercutting of the cliff.
Hydraulic action. Erodes by the sheer weight of water crashing against cliff (30tonnes/m^2). Finally, there is the effect of air compression in cavities in the cliffs. As the wave recedes the compressed air expands explosively sending shock waves through the cliff. Cavitation;

For each: 1 mark for each valid comment. If a complex link is made then credit both sides of the link. **(0-4 marks)** **(0-4 marks)**

(iii) Depends on the example. Candidates could e.g. choose the Isle of Purbeck example and give the full range of features from headlands and bays to caves and arches. On the other hand they could just decide to concentrate on just one aspect e.g. Lulworth Cove. Both are allowed to get to full marks. Any length of coastline is acceptable. Candidates could also choose to look at the effect that bedding/faulting/rock type etc. have on the cliff profile. Thus horizontal bedding generally gives steep cliffs, many cliffs are fault lined, clays lead to slumped cliffs etc.

Level 1 **(0-3 marks)**
Simple links between any aspect of geology to a shape of a coastline. Only vague use of named example.Simple description of geology

Level 2 **(4-8 marks)**
Detailed description of geology of a named length of coastline. Link between the geology of a named length of coastline and the nature of that coastline. Generic statements linking geology to coastal landforms with or without named example 7 maximum.

(b) Sub-aerial processes include mass movements (slumping/slipping/sliding) and weathering (salt crystal growth) and the effect of animals and vegetation. The nature of their effects depends upon the processes chosen e.g. rotational slumping can cause blocks of the cliff to fall seawards to create a stepped appearance, with the top of the step held by vegetation. The toe of the slump may well extend over the tidal zone and so be washed away. Also accept freeze/thaw (with reservations); solution of limestone; lithophagus; snails.

Level 1 **(0-2 marks)**
Simple description of chosen sub-aerial process or simple effect of a named process on a coastline. Name of process.

Level 2 **(3-5 marks)**
Detailed description of the process. Detail of effect. Need both at L2 to gain maximum.

(c) Spits occur at river mouths and where the coastline changes direction. If the LSD brings material along the coast, as soon as the water deepens and the waves no longer break (resulting in inability to move material), then deposition occurs. There is a shallowing of the water and so waves can break and so LSD can occur.
Beaches are accumulations of sand and shingle that usually occur in sheltered costal positions. LSD can supply the beach material and sort it laterally. Make-up … sand/shingle/coral etc sand from 1/16 mm to 2mm, granule 2mm to 4mm, pebbles 4mm to 64 mm
From cliff/sea wall to below LWM Slope seaward; Some interruptions to steady slope – berms, ridges, beach cusps; Ripple marks; Coarser the sediment the steeper the slope
Explanation of LSD on its own is worth 1XL2.

Level 1 **(0-3 marks)**
Simple description of chosen landform. Name of landform.

Level 2 **(4-8 marks)**
Detailed description of chosen landform (2xL2 maximum). Clear link made between chosen landform and longshore drift. Must have L2 explanation to gain max.

(d) (i) Sand dunes: embryo 1m maximum height with 80-90% sand exposed, sea twitch and Lyme Grass (NB no marram); fore dunes (yellow) 5m maximum 20% exposed sand, creeping fescue, marram sea purge, cotton grass, heather; wasting dune 8m maximum, 40% exposed sand, acidic, heather and gorse. Other features would include steepness of dunes, slacks and blowouts. Field relationships are part of the description as is the pH etc.

(i) Saltmarshes: located within an estuary or on landward side of a spit. Most seaward part is covered by tide most of the time and only has algae and Salicornia. The slob zone with Spartina, then cliff and sward zone. There are also salt pans and creeks.

Level 1 **(0-2 marks)**
Simple description of the chosen feature.

Level 2 **(3-5 marks)**
Detailed description of the chosen feature, including detail of the scale (2Q maximum) and the vegetation (2 Sp maximum).

(ii) In the case of sand dunes, vegetation (seawort) can cause the initial build-up of the sand by slowing the wind close to the surface and interruption of the saltation. Later invaders including marram have an extensive root system that holds the sand together and provides the humus that stains the sand and enables it to hold more water and therefore be less easy to move. Saltmarshes are created in quiet environments where flocculated mud is caught by the roots of salt loving plants. This builds up and dries out. Salt pans are created when sea water becomes trapped in the marsh as the water drains away. Water evaporates and leaves behind a salt deposit.

Level 1 **(0-3 marks)**

Simple statements linking the nature of the vegetation to change and development of chosen landform.

Level 2 **(4-6 marks)**

Details of how the vegetation causes deposition. Stabilisation and vegetational development of chosen landform.

(e) Fringing reef has volcanic island, reef in shallow water close to shore with small lagoon. Atoll is circle of coral with central lagoon. Both have breaks in coral. Diagrams can be either/or cross-sections or plain view. Dimensions of given example to max 3 between the 2 types
1 mark for each correct label. Max 4 for each type of reef. **(0-6 marks)**

OPTION R: URBAN PHYSICAL GEOGRAPHY

Question 3

(a) (i) Concrete buildings has greatest range reaching peak at 14.00. Urban park barely changes. Urban river is intermediate.

Level 1
Description of each change, 1 mark **(0-3 marks)**

(ii) The urban heat island phenomenon that is characterised by urban areas having higher temperatures than the surrounding rural area. As one approaches the urban centre from the outskirts there is a series of 'cliffs' and 'plateaux' caused by sudden changes in land use and then a uniformity of land use. Generally the greater the building density, the greater the temperature. There are anomalies, 'sinks' over parks and water bodies and 'peaks' over industrial areas and the CBD.
The causes include: the production of heat by human activity (home heating / air conditioning; factory, car, office heat emissions; human body emissions); lack of surface water producing less heat loss by evapotranspiration; absorption of insolation by multiple urban surfaces which is then re-emitted as long wave radiation that heats the air. The pollution in the urban atmosphere helps to increase cloud amount and also creates a pollution dome that allows in the short wave radiation but absorbs a lot of the outgoing radiation as well as reflecting it back to the surface.

Level 1 **(0-3 marks)**
Simple definition / description of the UHI effect. Use of unexplained terms for the explanation.

Level 2 **(4-8 marks)**
Detailed description of the UHI effect. To gain maximum marks there must be at least a level 1 example and a level 2 explanation.

(b) (i) Simple comparisons accepted. **(0-5 marks)**
Today: clear, good visibility; 1952: foggy/smoggy, very low visibility.

Level 1
Simple comparison of photos with no clear link to the air quality. **(0-2 marks)**

Level 2
Comparison of photos with clear link to the air quality. **(3-5 marks)**

(ii) The paradox that confuses students is that urban RH is lower than rural RH, mainly caused by the higher urban temperatures and yet urban fogs are common. The absolute humidities may be greater, in certain locations because of the emission of water into the atmosphere by factories, power stations, car exhausts, air conditioners etc. Thus fog in urban areas occurs when the RH is less than 100% because of the presence of hygroscopic nuclei in the form of a variety of particulates present in large quantities in urban areas.

As temperature decreases then RH increases until it reaches 100% and then condensation of water vapour takes place on nuclei. Although there is some occurrence of radiation fog in urban areas i.e. the ground losing heat rapidly at night and cooling the air above it etc., this is not all that common due to the UHI effect. It can happen in isolated areas of parks and urban commons or over areas of water. Many urban areas are built in a valley along a river. The cooler water of the river coming in from the rural area cools the air above it but also provides water vapour through the process of evaporation. This is increased if there is any warm effluent draining into the river. Cool air also flows down the valley sides and/or along the valley from the rural area. This cold air gathers in the valley floor producing an inversion that keeps the cold air trapped and can delay its dispersal. Low wind speeds also delay the dispersal of fog.

Level 1 **(0-3 marks)**
Simple links between fog-inducing factors and fog in urban areas.

Level 2 **(4-7 marks)**
Detailed link between named urban characteristics and the formation of fog and/or generic explanation of fog formation. To gain maximum there must be at least one urban factor (labelled U) at L2 that creates the greater incidence of fog in the urban area.

(iii) 'Policy' can be interpreted in its widest sense. Thus policies can include the Clean Air Act, pedestrianisation, public transport improvements, 'park and ride' schemes, MOV lanes, cycle lanes etc., all attempts to reduce traffic flow in urban areas; downwind placement of industrial complexes, planting of vegetation to capture particulates on leaves etc. etc.

Level 1 **(0-3 marks)**
Simple identification of a policy with no indication of how it operates or what the effect is supposed to be.

Level 2 **(4-7 marks)**
Identification of a policy, with either some indication of how the policy operates or what effect it has. There must be two policies at L2 to gain the maximum mark.

(c) (i) Introduction of plants and animals to the urban landscape has had several effects. Firstly, there has been a general change from native species to an ecology (in gardens and ornamental parks) dominated by exotics. Secondly there have been escapes from gardens, of plants brought in by collectors or amateur gardeners. Escapes could occur from wind blown seed, animal or plant vectors etc. Examples likely to be used are the Oxford Ragwort, whose windblown seeds have been dispersed along routeways in the vortices of vehicles.

Level 1 **(0-3 marks)**
Simple statements regarding how people deliberately brought new species into the urban areas and so changed.

Level 2 **(4-8 marks)**
Link between specific examples and the method by which they have become introduced into urban areas and how this changed the vegetation composition.

(ii) The nature of the answer will depend upon the organisations used by the candidate. It is expected that candidates will use local and central government whose motives may be political inasmuch as they are trying to fulfil the wishes of their constituents. There may also be some altruistic motives, where green areas provide amenity space within the city. They may also hide an eyesore. Other organisations could include the Urban Forestry Unit, the Nature Conservancy Council. Schools may be involved, as well as individuals such as birdwatchers etc. who may wish for a diverse environment for study or to attract new species. Local businesses are beginning to see the effects of having green spaces that make areas attractive and so will attract customers – this can be either shops or factories. Sports bodies often wish to reduce the diversity of plant species by simple planting of grass for football fields etc. where once there were meadows.

Level 1 **(0-2 marks)**
Simple description of at least one organisation/individual involved and their attitude to conservation.

Level 2 **(3-5 marks)**
Description of at least two organisations with differing attitudes.

(iii) Routeways are distinctive because they have the possibility of the incursion of **exotic species** of plant and insects, brought in by the traffic, train etc. and represent 20% of the urban city. Routeways act as **wildlife corridors**, comparable with rural hedgerows. Railway lines enable animals to move around the city with little or **no interference** from traffic. During the days of steam there were frequent **fires** which burnt off tall species of plant and allowed the light in encouraging **light demanding species** e.g. primroses and foxgloves to establish. **Windborne seeds are sucked along** by the trains e.g. Oxford Ragwort. Spiders are moved along the line in the same way. Also lack of human disturbance created by the fencing enables urban foxes and badgers to exist. On the unburned, **bramble filled** railway land brambles have established and these provide nesting sites for a wide variety of bird life. Road traffic acts in the same way with regard to the distribution of animals and insects. They also provide a home for kestrels and **scavenging birds**. The **nitrogen rich fumes boost the growth** of some wildflowers and they in turn increase insects and animals further up the food chain. Increasingly there are embankments and cuttings that are managed much more diligently and so there has been planned planting of **trees and shrubs to act as noise screens**. Grass is also mown regularly. This can reduce the number of wildflowers and fauna. **Canals act as large ponds**. They often have a variety of waterfowl (moorhens, coots, ducks) and water-loving insects (dragonflies, damselflies) and birds (kingfishers). There are **aquatic plants** (flag, iris).

The vast majority of most urban parks is mown grass, a wildlife desert, with low species diversity, one of the few beneficiaries is the starling. Other areas within parks include flowerbeds, with a variety of bedding plants and annuals and shrubs, many of which are exotic species. The wildlife is reduced because of chemical pesticides etc. There are some parks that have trees, many of which were planted during Victorian times. These provide a habitat for large numbers of insects that in turn provide food for creatures further up the food chain. During Victorian times the parks were planted with laurel bushes and carpet bedding, they could survive the pollution. As the urban air has been cleaned there has been an increase in the variety of plant life. Animal life includes the squirrels (though their increase may have been the cause of the decline in songbird numbers) and urban foxes etc. The main reason for the differences between the parks and other urban areas is because they have been designed for mass usage. Thus the football pitches have to be mown regularly, much more so than e.g. verges. The flower beds have often had more money spent on them than most gardens, but economies of scale created by extensive planting have meant that there are often many more exotic species than in a garden. Also the nature of the planting has been planned to please the majority of park users rather than individual tastes, etc. etc. Gardens are so varied that examiners must use their judgement and credit points made that they are generally a reflection of their owner and so can vary from house to house. The important thing is that they are highly planned, even the so-called wild-life garden.

Ecological conservation areas differ because succession has been influenced deliberately by man. The nature of the development will depend on the example chosen. The answer should focus on the managed aspect of the area, thus one which is simply left alone to go through the succession is not relevant. Management techniques include the reduction in acidity of old industrial and coal spoil sites by addition of lime etc. The deliberate clearing of areas to create a variety of habitats for smaller light demanding species. Some areas have a system whereby mowing is only done once meadow flowers have flowered.

Level 1 **(0-3 marks)**

Simple description of the ecology of chosen land use with no attempt at pointing out the unique qualities.

Level 2 **(4-7 marks)**

Detailed description of the ecology of chosen area 2 x L2 Sp max; There must be at least 1 L2 description for 2 areas to gain maximum marks.