

1. (a) (i) The set of conditions (in a habitat) that an organism requires, or the role(s) of a species in a community / ecosystem / environment. 1
- (ii) Change in the particular set of conditions required by a species. 1
- (b) Low diversity in / few species adapted for extreme environments; because extreme factors/named example make conditions unsuitable. 2
- (c) More food available. 1
- (d) Insects contain proteins/amino acids; which can be absorbed after digestion; so replacing / adding to inadequate supply of nitrates / lack of nitrogen. 3
- (e) *Maximum 3 points for conservation, e.g.*
 Extinction of rare species / species adapted to this environment;
 Potential uses of 'lost' species;
 Possible effects on food webs / ecosystem, e.g. greenshanks can't breed;
 Aesthetic aspects / loss of tourists;
 Low economic value of timber / trees don't grow well;
Maximum 3 advantages of afforestation, e.g.:
 Uses of timber;
 National self-sufficiency;
 Creation of local jobs;
 Increased diversity / greater range of habitats. max 4
2. (a) (i) 850 years or over;
 more species/types of plant;
 greater variety of food sources / more niches / variety of habitats; 3
- (ii) variety of predators;
 feed on crop pests/or named pest; 2

[12]

- (b) (i) use of graph to obtain number over 1000 i.e. $9 \times 4 = 36 / \frac{36}{227} \times 100$;
correct answer award 2 marks 15.86/15.9%; 2
- (ii) reduced competition for named resource e.g. light/nutrients/water, therefore increase in crop growth/reduced fertiliser use/ increased photosynthesis;
 increased land for growing crops;
 larger fields/more room, more efficient use of machinery/ease of ploughing/harvesting;
 removal of harbours of potential pests, less crop damaged/diseased/eaten;
 no hedge maintenance, less time wasted / labour intensive/ less money
 spent/ economic advantage; 2 max

[9]

3. (a) line drawn showing decrease then recovery; 1
- (b) high initially because sewage contains large numbers of microorganisms/bacteria;
 less organic material therefore fewer bacteria;
 less oxygen used for breakdown/respiration; 3
- (c) decrease due to low oxygen;
 increase due to large food supply/organic matter/sufficient oxygen/little or no competition;
 decrease due to increased (interspecific) competition from other invertebrates/less food/organic matter; 3

[7]
 QWC 1