### Suggested answers

**Extinction question**

#### (a) (i)
- rapid environmental change/ less sunlight/ colder
- no variation in dinosaurs well suited to new conditions
- large creatures require more food which is unavailable in low sunlight
- dinosaurs less able to adjust to sudden temperature changes
- large creatures may have long generation time/ slower evolution

Any 3 for 1 mark each

#### (ii)
- more different habitats available
- therefore diversity encouraged
- previously dinosaurs had used all the available food in these habitats
- more niches available
- less competition/no predators
- rapid breeding allowed fast selection of variant best suited to new conditions

Any 3 for 1 mark each

#### (b) (i)
- inevitable
  - intelligence a great evolutionary advantage
  - therefore each small increase is favoured
  - whatever the environment
  - evolution a process of continuous improvement
  - God had a hand in “lucky” accidents

*chance*
- dinosaurs did not become intelligent
- loss of dinosaurs certainly chance
- many very successful species are not particularly intelligent
- evolution mainly significant when environment changes
- unlikely that humans and dinosaurs could have co-existed
- as humans could not have competed at that stage

Any 2 for 1 mark each

#### (ii)
- belief in God likely to influence
- humans part of God’s purpose
- those who like the idea of improvement and progress likely to choose inevitable
- those who believe in environment as main determinant of human characteristics likely to choose chance
- most scientific evidence suggests chance

*Credit students who use a creationist argument in either (i) or (ii) but not twice*
Figure 1 A dinosaur fossil

- About 70 million years ago dinosaurs were the largest land animals. There were many different species of dinosaur.
- Some small mammal species existed alongside the dinosaurs.
- About 65 million years ago the last species of dinosaurs died out, dinosaurs became extinct.
- About 65 million years ago mammals began to evolve more rapidly into a huge diversity of species, including larger mammals and eventually humans.
- One widely accepted explanation for the extinction of the dinosaurs is that a large asteroid hit the Earth about 65 million years ago. The effects of this impact reduced the amount of sunlight reaching Earth and caused widespread environmental changes.

(a) (i) Suggest how Darwin’s theory of natural selection can explain the extinction of the dinosaurs.
(ii) Suggest why mammals evolved into a much greater diversity of different species once the dinosaurs had died out.

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(3 marks)

(b) There are two main points of view on whether human evolution was inevitable or not.

- Some people think that intelligent life similar to humans would have evolved over time, whether or not the dinosaurs had been wiped out.
- Others think that evolution might have taken a very different course if the dinosaurs had still been around and humans might never have appeared.

(i) Which point of view do you think more likely to be correct? Explain the reasons for your choice.

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(2 marks)

(ii) Suggest how scientists’ individual social or religious interests or commitments might influence which of these two points of view they favour.

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(2 marks)

Total 10 marks