

**ADVANCED SUBSIDIARY GCE
GENERAL STUDIES**

2962

The Scientific Domain

MONDAY 14 JANUARY 2008

Morning

Time: 1 hour 15 minutes

Additional materials (enclosed): Answer Booklet (8 page)
Insert

Additional materials (required):
An approved calculator



INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the spaces provided on the Answer Booklet.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Write your answers in the Answer Booklet.
- If you use additional sheets of paper, fasten the sheets to the Answer Booklet.
- Answer **all** the questions in Section A and **one** question in Section B.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **100**.
- You are advised to divide your time equally between Sections A and B.
- **Where an answer requires a piece of extended writing, the quality of your written communication will be assessed, including clarity of expression, structure of arguments, presentation of ideas, grammar, punctuation and spelling.**

This document consists of **4** printed pages and **1** Insert.

Section A

Answer **all** questions in this section.

- 1 (a) A car travels 220 miles at an average speed of 40 miles per hour.
- (i) How long does the journey take in hours and minutes? [2]
- (ii) With an average petrol consumption for the journey of 25 miles/gallon, how much petrol does the car consume over the distance of 220 miles? [2]
- (iii) Fig. 1 is a speed-time graph for a car journey. Describe the differences in the speed of the car during each of stages **P**, **Q**, **R** and **S** on the graph. [4]

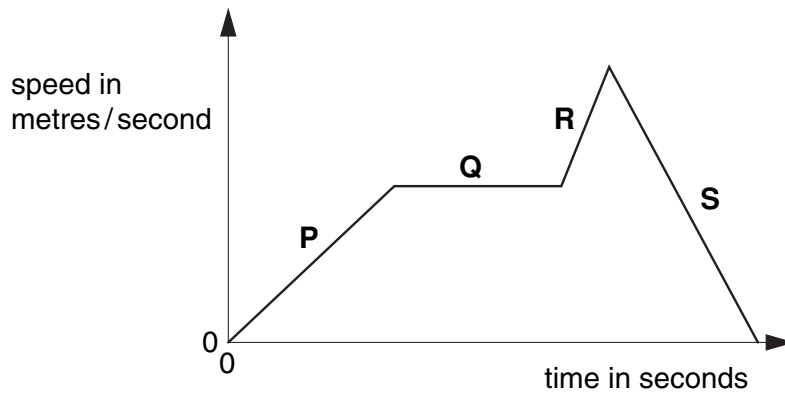


Fig. 1

- (b) Fig. 2 contains distance-time graphs for two different routes for a car journey between the cities of Worcester and Oxford. The two journeys are not interrupted by any stoppages and take about the same time.

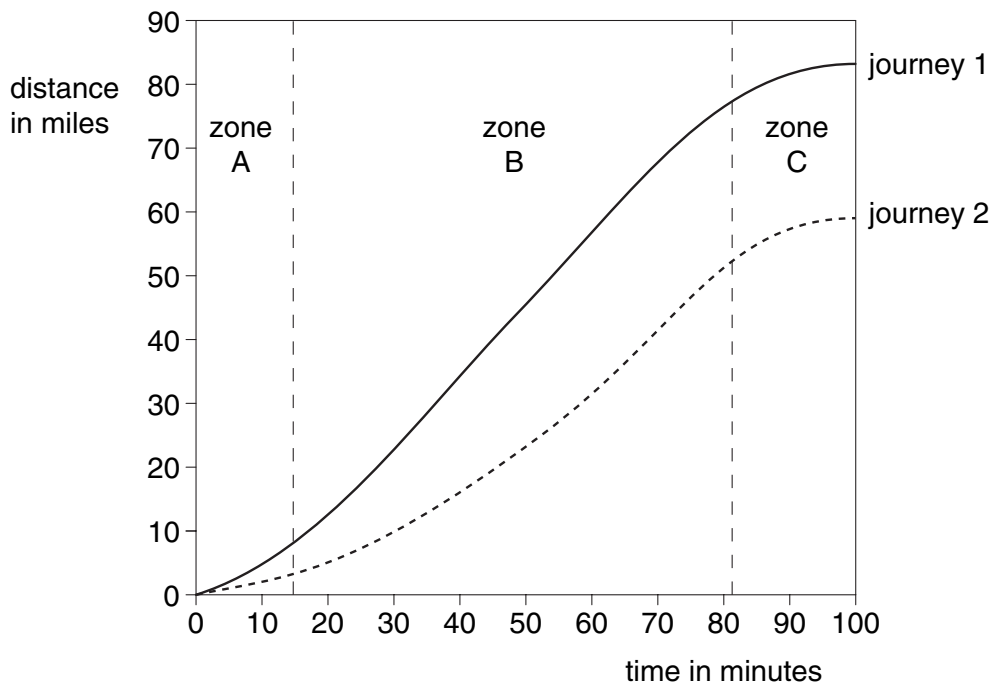


Fig. 2

- (i) Suggest and describe reasons for the similarities of journeys 1 and 2 in zones A and C. [4]
- (ii) Suggest and describe reasons for the differences between the journeys in zone B. [5]
- (c) Table 1 summarises the type of performance data that appears in sales advertisements for cars.

Table 1

	City Car	Small Family Car	Large Family Car	MPV 4x4
fuel type	Diesel	Diesel	Petrol	Petrol
engine size	1300cc	1560cc	1800cc	2800cc
average miles per gallon	65.7	58.0	33.6	26.2
maximum speed (miles per hour)	99	117	137	135
0-60mph time	13 seconds	10.9 seconds	10.5 seconds	9.9 seconds
CO ₂ emissions	114 g/km	127 g/km	202 g/km	259 g/km

Using only the data provided, describe and justify **four** factors which might influence a person's choice of **one** of the cars contained in Table 1. [8]

[25] marks

- 2 Use the model for scientific method shown in Fig. 3 to design an experiment that will assess whether there is a link between plant growth and soil moisture

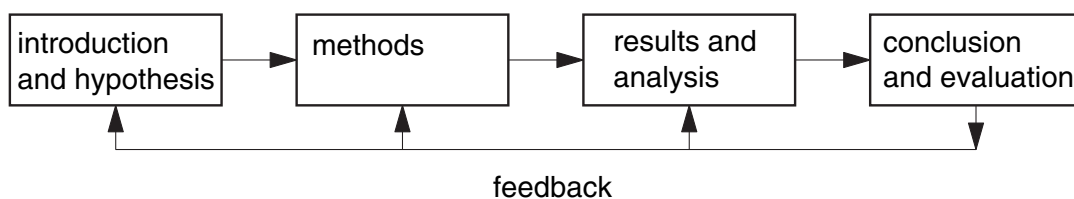


Fig. 3

[25] marks

Total [50] marks

Section B

Choose **one** question from this section. Answers should be in continuous prose.

- 3 (a) Fig. 4 shows three projections for global population change.

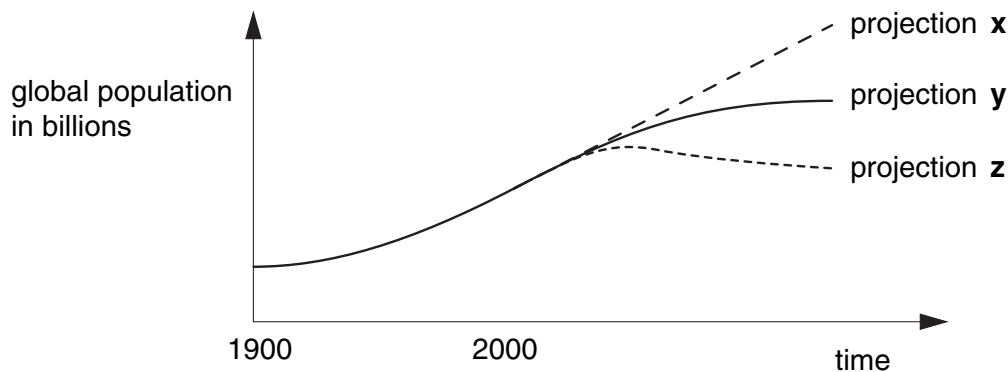


Fig. 4

Suggest an explanation for **each** of the projections. [10]

- (b) Assess the range of strategies available to governments in managing population size. Refer to both developed and developing countries. [40]

- 4 (a) Outline **four** scientific reasons for keeping wild animals in zoos and wildlife parks. [10]

- (b) Fig. 5 (Insert) contains two images of tropical rain forest. Assess the scientific reasons for the conservation of areas such as these. [40]

- 5 (a) For **each** of the following identify a problem that stimulated scientific research:

- food
 - the atmosphere
 - electrical energy.
- [10]

- (b) Assess the contribution of scientists to increasing life expectancy. [40]

Total [50] marks

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