

Instructions

There are **three** sections in this examination paper:

Section 0	Area and Volume (old syllabus)	50 marks	1 question
Section A	Concepts and Skills	125 marks	5 questions
Section B	Contexts and Applications	125 marks	3 questions

Answer **all nine** questions, as follows:

In Section 0, answer Question 1.

In Section A, answer Questions 2, 3, 4, 5 and 6.

In Section B, answer:

Question 7

Question 8

either Question 9A **or** Question 9B.

Write your answers in the spaces provided in this booklet. There is space for extra work at the back of the booklet. You may also ask the superintendent for more paper. Label any extra work clearly with the question number and part.

The superintendent will give you a copy of the booklet of *Formulae and Tables*. You must return it at the end of the examination. You are not allowed to bring your own copy into the examination.

Marks will be lost if all necessary work is not clearly shown.

Answers should include the appropriate units of measurement, where relevant.

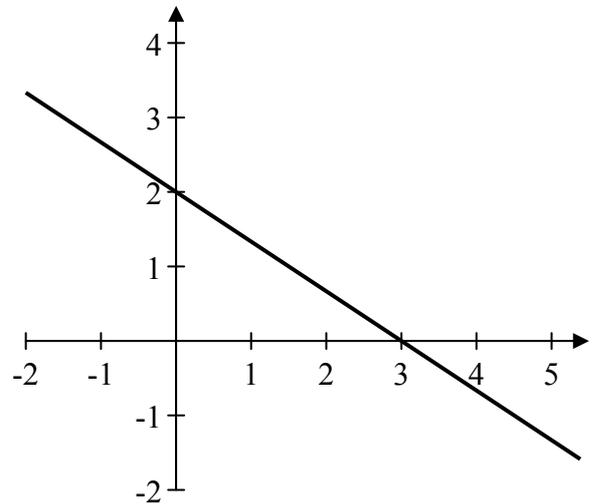
Answers should be given in simplest form, where relevant.

Answer **all five** questions from this section.

Question 2**(25 marks)**

- (a) A line crosses the x -axis at $x = 3$ and the y -axis at $y = 2$.

Find the equation of the line.

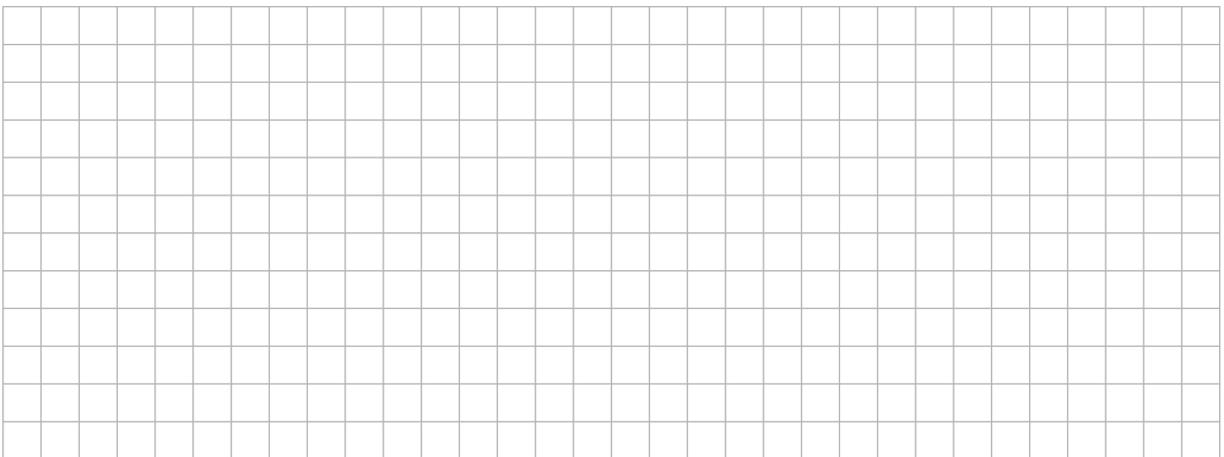


- (b) The equations of two lines l_1 and l_2 are:

$$l_1: x + 3y = 8$$

$$l_2: 6x - 2y = 15.$$

Determine whether these lines are perpendicular. Justify your answer clearly.



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Question 8

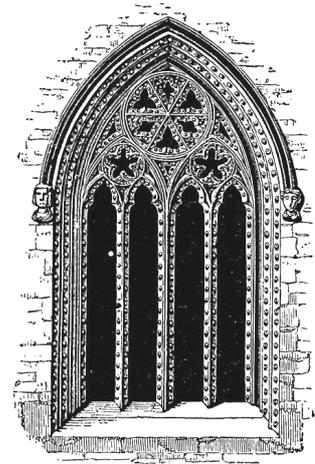
Geometry and Trigonometry

(40 marks)

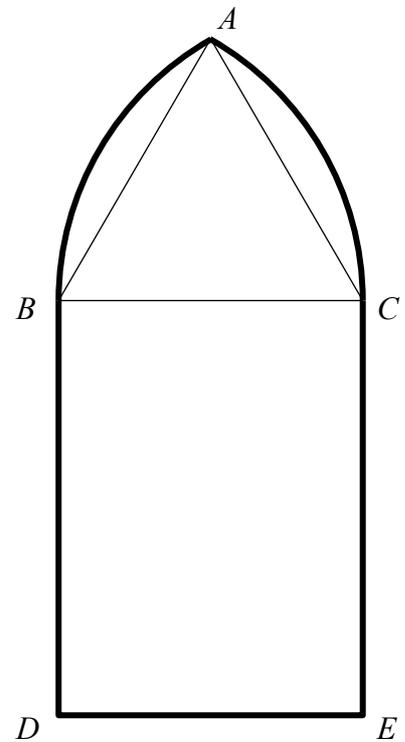
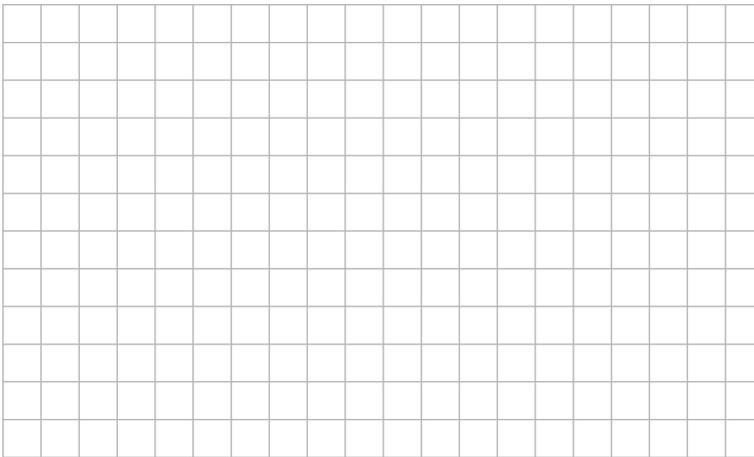
Windows are sometimes in the shape of a pointed arch, like the one shown in the picture.

A person is designing such an arched window. The outline is shown in the diagram below the picture.

The centre for the arc AB is C and the centre for the arc AC is B . $|BD| = 2.4$ metres and $|DE| = 1.8$ metres.



- (a) Show that $|\angle ABC| = 60^\circ$.



- (b) Find the length of the arc AB .
Give your answer in metres, correct to three decimal places.



- (c) Find the length of the perimeter of the window.
Give your answer in metres, correct to two decimal places.



Question 9A

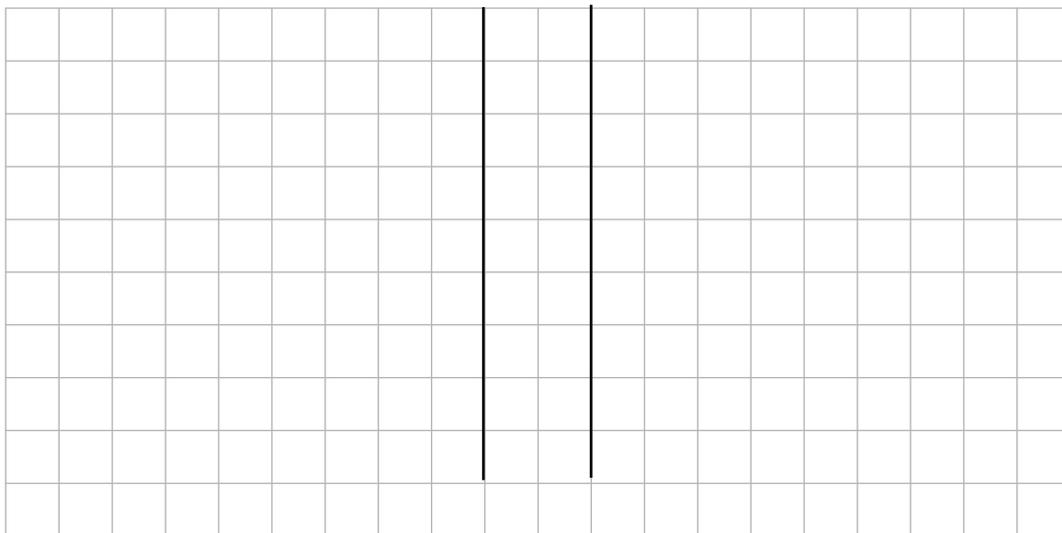
Probability and Statistics

(45 marks)

Students in two schools – one in County Kerry and the other in County Offaly – were arguing about which county had the nicest weather in the summer. They agreed to record the highest temperature at each school on ten randomly selected days during the summer of 2009. The results were as follows:

Temperature at Kerry school ($^{\circ}\text{C}$)			Temperature at Offaly school ($^{\circ}\text{C}$)		
18.5	17.2	17.8	22.1	18.0	19.1
17.6	17.5	17.2	17.2	18.4	18.6
17.1	16.9	16.9	19.8	19.0	17.6
17.1			17.0		

(a) Construct a back-to-back stem-and-leaf plot of the above data.



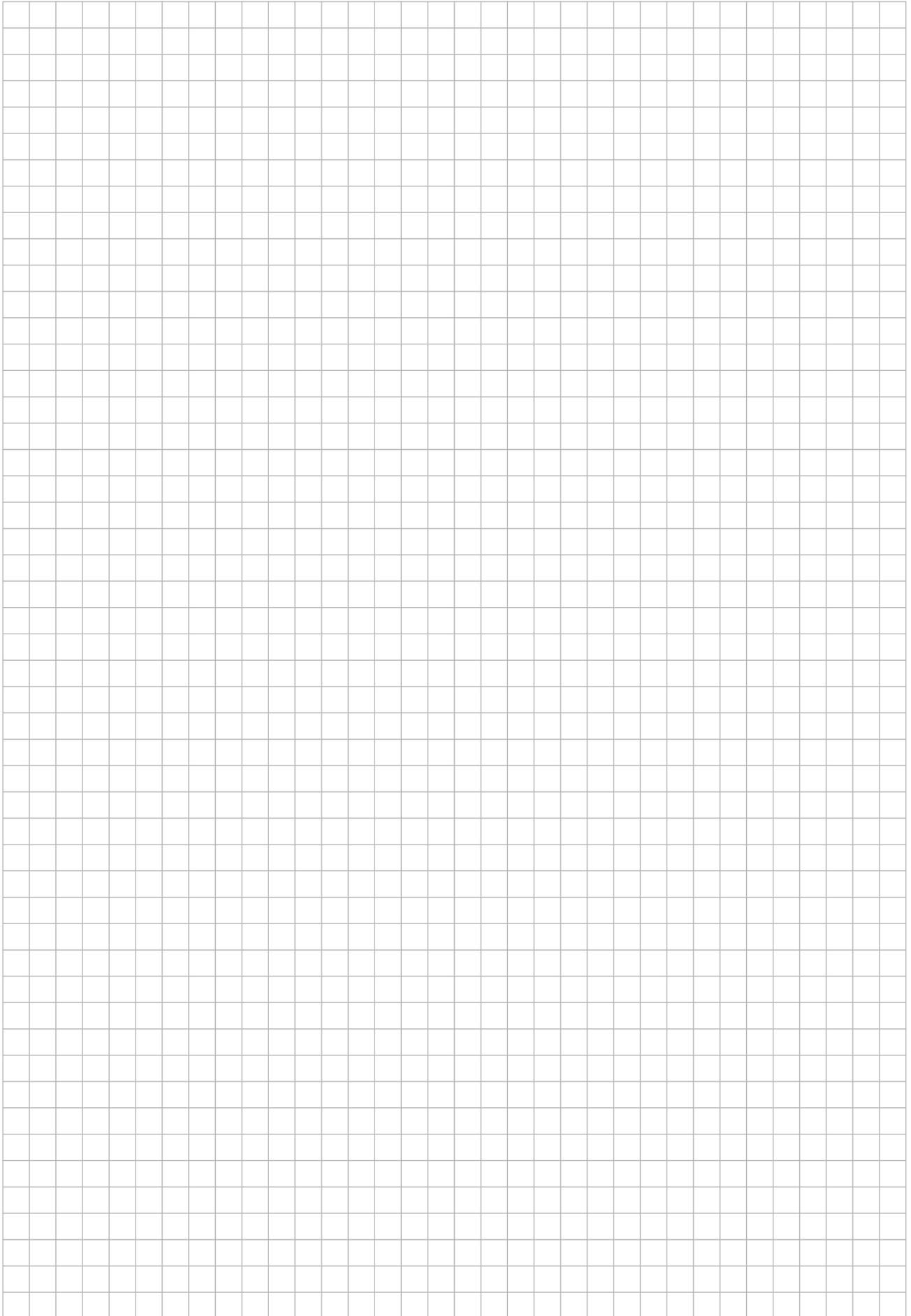
(b) State **two differences** between the two distributions.

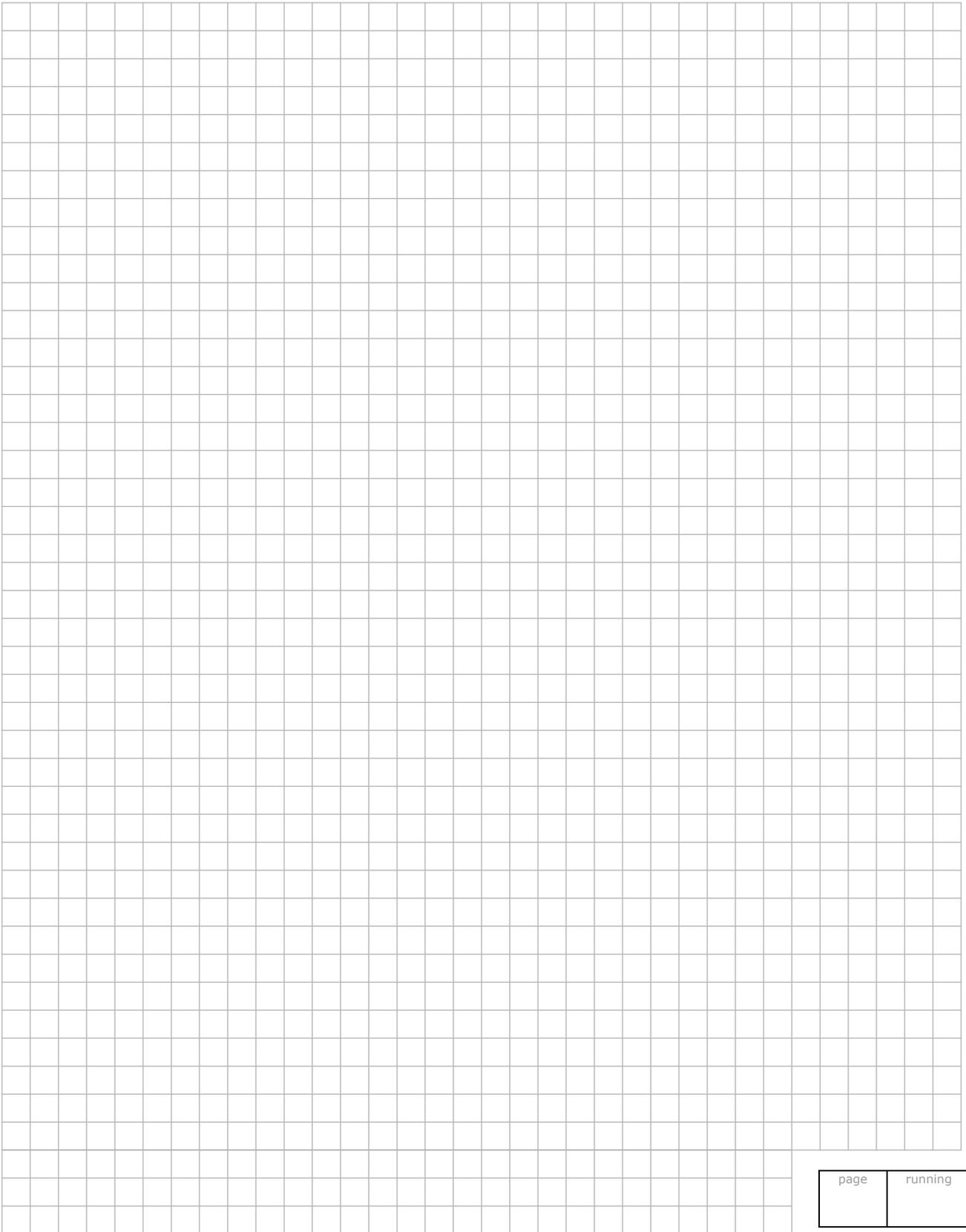
Difference 1: _____

Difference 2: _____

(c) Perform a *Tukey Quick Test* on the data, stating clearly what can be concluded.

You may use this page for extra work





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Leaving Certificate – Ordinary Level

Mathematics (Project Maths) – Paper 2

Monday 14 June
Morning 9:30 – 12:00