Section I
75 marks

Part A – 20 marks
Attempt Questions 1–20
Allow about 35 minutes for this part

Use the multiple-choice answer sheet for Questions 1–20.

1 What is the most common rock type found in oceanic crust?
   (A) Basalt
   (B) Granite
   (C) Mudstone
   (D) Limestone

2 What is the major cause of earthquakes that occur on the Australian continent?
   (A) Stress at convergent plate boundaries
   (B) Continental volcanic activity
   (C) Thermal uplift and rifting
   (D) Intra-plate stress

3 Which of the following best describes the direction of the growth of the Australian continent over geological time?
   (A) North to south
   (B) South to north
   (C) West to east
   (D) East to west

4 Which of the following is true according to the convection current hypothesis of plate motion?
   (A) Hot spots in the mantle cause lithospheric thickening.
   (B) Down-welling in the mantle causes transform faults.
   (C) Upwelling in the mantle pushes plates apart.
   (D) Colder regions in the mantle attract plates.
The diagram shows the first stage of the plate tectonic supercycle.

One supercontinent surrounded by oceanic crust

Four other stages, not in order, are shown below.

1

2

3

4

What is the correct order for the remaining stages?

(A) 2, 3, 1, 4

(B) 2, 3, 4, 1

(C) 2, 1, 3, 4

(D) 2, 1, 4, 3
Scientists used temperature records to examine the effect of eight large volcanic eruptions during the past two centuries. The graph shows the average variation in temperature in the Northern Hemisphere before and after these eruptions.

Using the information in the graph, which of the following hypotheses is correct?

(A) Volcanic eruptions influence global temperatures before and after an eruption.

(B) Volcanic eruptions cause a decrease in temperatures in the Northern Hemisphere after an eruption.

(C) Volcanic eruptions have no influence on temperatures in the Northern Hemisphere before or after an eruption.

(D) Volcanic eruptions cause an increase in global temperatures before an eruption and a decrease in temperatures after an eruption.
Question 21 (6 marks)

Mount Merapi is a large composite volcano in central Java, Indonesia. More than half a million people live in towns and villages close to the volcano. Agriculture is the main land use in the area.

(a) Name and describe TWO physical hazards that exist for organisms living near volcanoes such as Mount Merapi. 

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(b) Name and explain how TWO features of volcanic regions such as Mount Merapi benefit agriculture.

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Question 22 (8 marks)

The diagram shows the location of major earthquakes and active volcanoes in the northern Pacific Ocean over the last 20 years.

(a) Identify the type of plate boundary at Y and describe the relative motion of the plates on each side of the boundary.

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Question 22 continues
Question 22 (continued)

(b) Draw a labelled cross-section across the plate boundary from A to B.

(c) Account for the lower number of volcanoes on the west coast of North America near Y compared to the western Pacific region.

End of Question 22
Question 36 (8 marks)

Earth's climate has varied since the Earth formed.

Analyze the influence of geological processes over time, and human activity since the Industrial Revolution on climate.