Instructions

- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name, centre number and candidate number.
- Answer all questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- Where asked you must show all your working out with your answer clearly identified at the end of your solution.

Information

- The total mark for this paper is 94.
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.
- The marks available for spelling, punctuation, grammar and use of specialist terminology are clearly indicated.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.
1. Study Figure 1.

Figure 1
The Earth's layered structure

(a) (i) Identify which one of the following describes the outer core.

☐ A a liquid layer of 2 200 km in thickness
☐ B a solid layer with temperatures over 5000˚ Celsius
☐ C a layer of partly molten and partly solid rock
☐ D a solid layer of 1 300 km in thickness
(ii) State which one of the Earth's layers has the highest density.

- A mantle
- B crust
- C inner core
- D outer core

(b) (i) Explain one cause of a tsunami.

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(ii) Identify one primary impact of tectonic hazards.

- A loss of employment
- B spread of disease
- C destruction of buildings
- D homelessness
(c) Analyse the data in Figure 2.

Figure 2
Mean Antarctic temperatures and atmospheric CO₂ concentration over the past 200,000 years

(i) Describe the trends in mean Antarctic temperatures and CO₂ concentration as shown in Figure 2. Use numeric data in your answer.

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(ii) Explain **one** natural cause of climate change.

(d) The Saffir-Simpson Scale measures the magnitude of tropical cyclones.

Identify **one** source of data used to calculate the Saffir-Simpson Scale of a tropical cyclone.

- [ ] A satellite imagery
- [ ] B seismometer readings
- [ ] C recorded wind speeds
- [ ] D thermometer readings
(e) Study Figure 3.

Figure 3
Actual and predicted path of Hurricane Matthew (Oct 2016) and data for selected countries

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>Haiti</th>
<th>The Bahamas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Deaths</strong></td>
<td>33</td>
<td>1,027</td>
<td>27</td>
</tr>
<tr>
<td><strong>GDP per Capita (US$)</strong></td>
<td>57,294</td>
<td>761</td>
<td>24,567</td>
</tr>
<tr>
<td><strong>HDI (Human Development Index)</strong></td>
<td>0.92</td>
<td>0.48</td>
<td>0.79</td>
</tr>
</tbody>
</table>
(i) Haiti appears to be very vulnerable to the impacts of Hurricane Matthew.

Using Figure 3, suggest two reasons why.

(4)

1

2

(ii) Figure 3 includes a GIS cyclone track map.

Explain two ways maps such as these can help countries to prepare for tropical cyclones.

(4)

1

2
(f) Explain one way in which global atmospheric circulation determines the location of high rainfall (low pressure) areas.

You may use a diagram to help your answer.
(g) Evaluate the effectiveness of the methods of response to a tropical cyclone in a named developed country.

Named developed country


(Total for Question 1 = 30 marks)

TOTAL FOR SECTION A = 30 MARKS
SECTION B
Development Dynamics

Answer ALL questions in this section. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☑. If you change your mind about an answer, put a line through the box ✗ and then mark your new answer with a cross ☑.

Spelling, punctuation, grammar and use of specialist terminology will be assessed in 2(g).

2 (a) (i) Which of the following is the definition of ‘Gross Domestic Product (GDP)?

☐ A the total value of goods and services produced within a country during one year
☐ B the total value of all products imported by a country during one year
☐ C the total value of all products exported by a country during one year
☐ D the total value of all exports minus the value of imports during one year

(ii) Which one of the following is included in the Human Development Index (HDI)?

☐ A the average number of women dying in child birth
☐ B the average number of births per woman
☐ C the average number of years attending school
☐ D the average number of people of working age

(b) Explain how the HDI measures the health of a population.

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Turn over
(c) Explain **one** way in which topography affects economic development. (3)

(d) Analyse Figure 4.

**Figure 4**

FDI received by selected countries between 2000 and 2014
(i) Calculate the difference between the FDI in China and India in 2014. 

............................................................................................................................ US$ billions

(ii) Calculate the percentage increase in FDI in China between 2000 and 2014. Answer to one decimal place. Show your working.

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(e) Explain one disadvantage of top-down development strategies.

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(f) Analyse Figure 5.

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural population (millions)</th>
<th>Urban population (millions)</th>
<th>Total population (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>550</td>
<td>100</td>
<td>650</td>
</tr>
<tr>
<td>1980</td>
<td>805</td>
<td>198</td>
<td>1,003</td>
</tr>
<tr>
<td>2000</td>
<td>820</td>
<td>455</td>
<td>1,275</td>
</tr>
<tr>
<td>2020 (projected)</td>
<td>650</td>
<td>750</td>
<td>1,400</td>
</tr>
</tbody>
</table>

**Figure 5**

Changes in the actual and projected rural and urban population of China between 1960 and 2020

(i) For 1960, calculate the ratio of rural population to urban population.

(ii) Describe another data presentation technique which could be used to show the changing rural and urban populations in China in the table (Figure 5).

(iii) Explain one negative impact of rapid economic development on human health.
(iv) For a named emerging country, explain **two** socio-economic differences between regions.

Named emerging country ............................................................................................................................

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In this question, up to four additional marks will be awarded for your spelling, punctuation, grammar and use of specialist terminology.

(g) Evaluate the impact of globalisation on the economy of a named emerging country.

Named emerging country

(8)
SECTION C
Challenges of an Urbanising World

Answer ALL questions in this section. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

3 (a) State which of the following is the definition of urbanisation.

☐ A an increasing number of people living in the suburbs of cities

☐ B an increasing proportion of people leaving the cities and moving to rural areas

☐ C an increasing number of people living in city centre locations

☐ D an increasing proportion of a country’s population living in urban areas

(b) (i) State one characteristic of informal employment.

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(ii) Explain one reason why informal employment has grown rapidly in some cities.

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(c) Study Figure 6.

Key:
IAMP  - International Advanced Manufacturing Park
- Sunderland’s Central Business District (CBD)

Figure 6
An annotated satellite image of Sunderland showing different land uses and future developments

(i) Identify the main land use found at locations X and Y by completing the table using the list below.

(2)

<table>
<thead>
<tr>
<th>Location</th>
<th>Main land use</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Transport</td>
<td></td>
</tr>
<tr>
<td>B Agricultural</td>
<td></td>
</tr>
<tr>
<td>C Residential</td>
<td></td>
</tr>
<tr>
<td>D Commercial</td>
<td></td>
</tr>
<tr>
<td>E Industrial</td>
<td></td>
</tr>
</tbody>
</table>

Location | Main land use |
---------|--------------|
X        |              |
Y        |              |
(ii) Describe the location of Sunderland's Central Business District (CBD) shown on Figure 6.

(iii) Suggest two factors which may have influenced the choice of site for the proposed International Advanced Manufacturing Park (IAMP) shown on Figure 6.
(d) Study Figure 7.

Example:

Mexico City 2011 population = 20m
Mexico City 2025 population = 25m
Percentage (%) population change from 2011 to 2025 = +25%
Circle diameter proportional to 2025 population

Figure 7

Populations and population growth rate of the world’s largest megacities
(i) Calculate the mean % population growth between 2011 and 2025 in South American megacities. Answer to one decimal place. Show your working.

(ii) Explain why the rapid growth of megacities shown in Figure 7 may cause social challenges.
(e) (i) State one reason why the population of megacities is likely to grow rapidly.

(ii) For a named megacity, explain why the quality of life varies between different residential areas.

Named megacity..............................................................................................................................................
(iii) For a named megacity, assess the different strategies used to improve sustainability.

Named megacity

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Figure 2 – Source from: https://robertscribbler.com/tag/anthropogenic-climate-change/

Figure 3 – Map data © 2017 Google, INEGI

Figure 6 – Map data © 2017 Google

Figure 7 – Source from: https://www.statista.com/chart/1826/population-growth-in-the-worlds-megacities/

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