

Mark Scheme (Results)

Summer 2019

Pearson Edexcel A Level In Geography (9GE0) Paper 03

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Paper 3 Mark scheme

Question number	Explain how one theory of development can help an understanding of global patterns of power.	Mark
	Indicative content	
1	AWard 1 mark for identifying a reason why one theory of development helps explain global patterns of power and a further 3 marks for expansion up to a maximum of 4 marks. For example: • Modernisation theory suggest that through the development of strong (state) institutions (1) these institutions include law courts, a banking system and the development of research institutions (1) which create an environment for investment and thus industrialisation (1) which provides the wealth for the development of military and economic power (1) leading to even pattern in theory (1) • Dependency theory argues that many countries cannot develop independently (1) because the core countries control their economies (1) and colonial and post-colonial systems make it impossible for the peripheral countries to compete (1) which locks them into perpetual dependency and poor rates of economic development (1) and therefore a reinforcement of inequalities and an uneven pattern of power(1) • World systems theory suggest that rich countries keep poorer countries poor (1) an thus maintain their power (1) by using local elites a sallies in delivering raw materials as cheaply as possible (1) and providing markets for imported manufactured good s and services (1) and therefore a reinforcement of inequalities (1)	(4)
	international relations – Mackinder, Myrdal, soft power/hard power etc., but do not accept 'theory of global shift', 'theory of outsourcing' and similar.	
	Accept any other appropriate response.	

Question number

2 (a) The table below shows data for the 12 richest countries (measured using GDP (per capita).

The formula for Spearman's rank correlation coefficient is given below.

$$R=1-\frac{6\sum d^2}{n^3-n}$$

Complete the table below and calculate the value of R for the data given, to two decimal places.

Show your working.

(4)

Mark

(4)

Indicative content

Brunei (0.4)

2 (a)

AO3 (4 marks)

Military GDP per d² Country (population size in Rank Rank millions) capita in spending as a % of \$US **GDP** 57,436 United States(324.5) 10 5.7 4 6 100 Saudi Arabia (32.9) 55,158 11 15.2 1 10 Netherlands (17.0) 3 51,049 12 2.8 9 3 **UAE (9.4)** 67,871 8 5.0 5 Switzerland (8.4) 59,561 9 1.7 10 -1 Singapore (5.7) 87,855 3 4.8 6 -3 2.9 8 -2 Norway (5.3) 69,249 6 Ireland (4.7) 69,231 7 0.6 12 -5 3 Kuwait (4.1) 71,887 5 8.2 2 7 -6 36 Qatar (2.6) 127,660 1 3.2 -9 81 Luxembourg (0.6) 104,003 2 1.1 11

4

6.6

3

1

320

76,884

Up to 3 marks for any of the following

1 mark for correct addition of $d^2 = 320$

1 mark for correct calculation of 6x320 = 1920	
1 mark for correct substitution of $n^3 - n = 12^3 - 12$ or 1728 -12 or result 1716	
1 mark for 1- 320/286	
1 mark for – 17/143	
1 mark for unrounded answer = -0.118881 or similar	
And a final 4 th mark for correct result to two decimal places of -0.12	
If error made do not double penalise if that error is carried forward – for example if 6x320 is wrongly calculated credit result if correctly calculated from the candidates figure(s).	

2 (b)	Explain why this sample of 12 countries may be an unreliable measure of the relationship between GDP per capita and military spending as a percentage of GDP. Indicative content	
2(b)	 AO3 (4 marks) For each reason, award 1 mark for identifying why this choice of countries makes the relationship tested unreliable. For example: The sample is quite small (1) and results would be very different if other countries included (1) there are only 12 countries chosen here out of over 190 members of the UN (1) and there is no suggested reason why richer countries will spend more, just because they can (1) many European countries are wealthy but do not have especially extravagant military budgets (1) The sample is only drawn from the richest 12 countries and/ or developed countries (1) and results would be very different if other types of country included (1) on the list there are countries e.g. Saudi/Luxembourg that impact on the result (1) making that result 'not significant' (1) The fact that countries are rich does not imply that they will have high military spending (1) some are very small states with no aspirations to global power (1) so military spending will be sufficient but not extreme (1) whilst others are superpowers (1) The result is not significant suggesting no relationship (1) whilst a different selection of countries might give a very different result (1) 	(4)
	 aspirations to global power (1) so military spending will be sufficient but not extreme (1) whilst others are superpowers (1) The result is not significant suggesting no relationship (1) whilst a different selection of countries might give a very different result 	

- GDP per capita is an inherently flawed statistic (1) given the inequalities in all countries (1)
- Data may be out of date (1) and therefore figures might have changed because of changing global/local situation (1)

Question Study Figure 1 and Figure 2 in Section A of the Resource Booklet, number Analyse the pattern of earthquakes in Japan and its surrounding region. Indicative content 3 AO1 (4 marks)/AO3 (4 marks) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. The best answers will use both Figure 1 and Figure 2, relating the pattern shown on Figure 2 to the topography of the ocean floor, especially the trenches. Relevant points may include: A01 In a subduction zone, plate subduction forms a trench and uplift area parallel to the trench and causes igneous activity and earthquakes. • Such uplift area is called a volcanic island arc or island arc because it is an arcshaped chain of islands and volcanoes. • Volcanic arcs formed on the edge of continent without marginal seas are continental margin arcs. The arrangement of major landforms, distribution of volcanoes, and geotectonic subdivisions of southwest Japan are parallel to trenches off the Japanese Islands. Plate subduction at trenches is responsible for these features, and island arcs and trenches, therefore, can be regarded as an island arc-trench system. Earthquakes are distributed according to these subduction zones with depths controlled by the type of boundary. Japan is an island-arc destructive tectonic boundary AO3 Most earthquakes appear to be associated with ocean trenches and subduction There are exceptions to this with earthquakes on the north-western coast of Japan most notable. Many of these exceptions are high magnitude so much so that one might conclude that north-west coast Japan is prone to bigger quakes than south east coast Japan. The highest magnitude quakes appear to be in the Japan trench and the Kuril Vast majority of earthquakes are also quite shallow between 0 and 80 kms.

Most of the high magnitude MMS

8 'quakes are shallow whilst deep (300-800km) are generally MMS 5 or 6

There is a line of very deep earthquakes in the Izu-Bonin arc

 There is a cluster of deep-seated quakes in the Japan Sea and on the (North Korean) coastline.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-3	 Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) Investigates the question/issue to produce a limited analysis of data/evidence, making few connections to geographical ideas. (AO3)
Level 2	4-6	 Demonstrates geographical knowledge and understanding, which is mostly relevant but may include some inaccuracies. (AO1) Critically investigates the question/issue to produce an analysis of data/evidence, making some logical connections to geographical ideas, which are mostly relevant. (AO3)
Level 3	7-8	 Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) Critically investigates the question/issue to produce a coherent analysis of data/evidence, making logical connections to relevant geographical ideas. (AO3)

Question Study Figure 3 and Figure 4 in Section A of the Resource Booklet number Analyse the relationship between earthquake risk and population density in the Japanese archipelago. **Indicative content** 4 AO1 (4 marks) AO3 (4 marks) **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive and candidates are not required to include all of it. The best responses will recognize that the risk/probability of an earthquake is high in some areas of high population density but much less so in others. They might also relate the probability of a magnitude 6 event in the future to recent seismic events. They might include the consequences of these relationships on specific regions of Japan. Other relevant material not suggested below must also be credited. Relevant points may include: **AO1** The probability/risk of an earthquake event occurring will depend on the location of an area in relation to plate boundaries and fault planes and the known history of the region/area. • Areas that have had recent earthquakes (since 1983) will often have lower probabilities because of that. Disasters are often a consequence of a conjunction of the strength of the hazardous event and the vulnerability of the population, the latter partially determined by its density. The coastal concentrations of population are clearly very vulnerable to earthquakes and to tsunami events - for example the Tohuku event. The location of the earthquakes is related to the angle of subduction of the Philippine and the Pacific Plates. Very considerable impacts depending on magnitude of events. Complex relationship between hazard risk and disasters. Vulnerability and resistance will vary from place to place. Probability maps are helpful in improving preparedness but not infallible, nor do they give you a date. AO3

- Earthquake risk greatest on Honshu and Shikoku with values between 26 and 100 population density very high in some of these areas
- Other hotspots- for example north-east Hokkaido with much more variable population density
- Earthquake fault planes all on the south-east coast.

- Subduction of the Philippine and Pacific plates the main control of location.
- Major earthquake events not so clearly matched to these zones with four major 'quakes well away from the high-risk areas.
- Some recent events extremely powerful Tohuku at 9.1.
- Population density very high on the coasts, especially on Honshu data used to support this.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-3	 Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) Investigates the question/issue to produce a limited analysis of data/evidence, making few connections to geographical ideas. (AO3)
Level 2	4-6	 Demonstrates geographical knowledge and understanding, which is mostly relevant but may include some inaccuracies. (AO1) Critically investigates the question/issue to produce an analysis of data/evidence, making some logical connections to geographical ideas, which are mostly relevant. (AO3)
Level 3	7-8	 Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) Critically investigates the question/issue to produce a coherent analysis of data/evidence, making logical connections to relevant geographical ideas. (AO3)

Question number

Study the resources in Sections B of the Resource Booklet.

Evaluate the view that the international trade is the main factor in the success of the Japanese economy.

Indicative content

5

AO1 (3 marks)/AO2 (9 marks)/AO3 (6 marks)

Marking instructions

Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below.

Indicative content guidance

The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include:

AO1

- Global shift has inevitably led to an increase in trade.
- TNC's are important in globalisation.
- National governments have promoted free trade.
- International migration (usually) plays a key role in deepening interdependence.
- Some countries have attempted to limit migration.
- Globalisation always produces both winners and losers but most countries depend to a greater or lesser extent on trade.

AO2

- A falling population will ultimately reduce domestic demand for goods reduce making exports increasingly important.
- An ageing population will change the nature of that demand away from some types of consumer goods to others; for example, a falling demand for cars making exports more significant.
- An ageing population may impact on Japan's reputation for innovation and hitech industry.
- If Japan's innovative skill leads to more use of robotics that might remove the need for labour but it will increase the importance of foreign markets.
- Resistance to in-migration may need to be overcome to avoid over-reliance on trade.
- Heavy reliance on imported energy exposes japan to risk of energy crises and place it in direct competition with other major economies for scarce resources.

Question number

Study the resources in Sections B of the Resource Booklet.

Evaluate the view that the international trade is the main factor in the success of the Japanese economy.

Indicative content

- However, the restarting of nuclear energy production suggests that they will become less dependent on these imports (thus trade).
- The nuclear industry is, however, threatened by another 'Fukushima; event.
- Japan's limited area of fertile land means that industrial expansion will almost inevitably make it more dependent of imported food.
- However, its falling population might compensate for that.
- Japan is inevitably dependent on trade given its size, population density and the impact of its geology.

AO3

- **Figure 5** shows that Japan's population is falling.
- **Figure 5** shows that that the population is ageing.
- **Figure 5 (text)** states that there is resistance to in-migration.
- **Figure 5 (text)** states that there will be significant higher social costs in the future.
- Figure 5 (text) states that aggregate demand for consumer products will fall.
- **Figure 6a** shows that Japan is dependent on imported petroleum, LNG and coal (3 of top 5 imports are energy related)
- **Figure 6a** shows that top 5 exports are more valuable than imports suggesting that Japan has positive trade balance.
- **Figure 6a** shows that Japan both imports and exports semi-conducters.
- **Figure 6a** shows that Japan exports manufactured products all of the top-5.
- **Figure 6a (text)** states that Japan used to protect its domestic markets form competition using tariffs.
- **Figure 6a (text)** states that Japan has used government subsidies to help its industries.
- **Figure 6a (text)** states that Japanese companies look after their employees but make them work long hours.
- **Figure 6b** shows that Japan is heavily reliant on imported fossil fuels.
- **Figure 7** shows that the contribution of nuclear energy was significant until Fukushima.
- **Figure 7** shows that Japan sees the need to restart its nuclear programme.
- **Figure 7** shows the need to increase the contribution of renewable energy sources.
- **Figures 7** states that Japan has developed its own nuclear technology.

Question number	Study the resources in Sections B of the Resource Booklet.		
	Evaluate the view that the international trade is the main factor in the success of the Japanese economy.		
	Indicative content		

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-6	 Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) Applies knowledge and understanding of geographical information/ideas, making limited and rarely logical connections/relationships. (AO2) Applies knowledge and understanding of geographical information/ideas to produce an interpretation with limited relevance and/or support. (AO2) Applies knowledge and understanding of geographical information/ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2) Makes superficial judgements about the value and reliability of quantitative and qualitative data/evidence. (AO3) Investigates the question/issue to produce a limited interpretation of quantitative and qualitative data/evidence, but lacks meaningful connections to geographical ideas from across the course of study. (AO3)

Level	Mark	Descriptor
Level 2	7-12	 Demonstrates geographical knowledge and understanding, which is mostly relevant but may include some inaccuracies. (AO1) Applies knowledge and understanding of geographical information/ideas to find some logical connections/relationships. (AO2) Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is supported by some evidence. (AO2) Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an argument that may be unbalanced or partially coherent. (AO2) Makes some valid judgements about the value and reliability of quantitative and qualitative data/evidence. (AO3) Investigates the question/issue to produce an interpretation of quantitative and qualitative data/evidence, making some meaningful connections to geographical ideas from across the course of study. (AO3)
Level 3	13-18	 Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) Applies knowledge and understanding of geographical information/ideas to find fully logical and relevant connections/relationships. (AO2) Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is supported by evidence. (AO2) Applies knowledge and understanding of geographical information/ideas to come to a rational, substantiated conclusion, fully supported by a balanced argument that is drawn together coherently. (AO2) Makes valid judgements about the value and reliability of quantitative and qualitative data/evidence throughout. (AO3) Critically investigates the question/issue to produce a coherent interpretation of quantitative and qualitative data/evidence, making meaningful connections to relevant geographical ideas from across the course of study throughout the response. (AO3)

Question number 6. Evaluate the view that Japan's status as a significant global power is not sustainable. (24) Indicative content 6 AO1 (4 marks)/AO2 (12 marks)/AO3 (8 marks) **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. Indicative content guidance The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: There is no 'correct' answer here, although answers that argue that whilst climate change is significant in the long term the short term threats of political disputes and trading issues are more of a threat in the short term, are likely to dominate A01 Patterns of power change over time. There are emerging 'superpowers' who challenge existing patterns of power. Tensions can arise over the use of resources. Rising economic importance of both China and India. Existing superpowers face existential challenges of their own. Future balance of power is uncertain with a range of possible outcomes. **AO2** Possible arguments for 'not sustainable'. • Japan's shrinking population poses a significant threat to its economic development. • Japan's energy mix and dependency on fossil fuel imports, makes it very vulnerable to global turmoil. • Japan's historic suspicion of foreigners makes it hard to develop 'soft' power successfully. • The risks of earthquakes are so high and so costly, its economy is constantly going to face these challenges impacting on its international status and its ability to pay for either 'hard' military power or 'soft' power alternatives. Japan may be increasingly overshadowed by its powerful neighbours – both

 Japan may be increasingly overshadowed by its powerful neighbours – both China and South Korea are immediate competitors for its exports markets which will impact on its economy.

 Reshoring trends (US) and shrinking global demand will impact negatively on Japan's export potential which allied to its shrinking domestic demand is very difficult to combat.

Possible arguments against 'not sustainable'

Question number 6. Evaluate the view that Japan's status as a significant global power is not sustainable. (24) Indicative content Predicting the future is fraught with difficulty. Japan's history of technical innovation suggest that they will overcome the obstacles. Recent history suggests that they are able to overcome the reality of their hazardous location e.g. the data shows significant advances since the 2011 tsunami event. A smaller population may reduce costs to the state and allow more investment in both 'soft' and 'hard' power. • Technical innovation in robotics and renewable energy is likely to reduce its dependency on fossil fuel imports. • Tokyo is a very successful global city and will help maintain Japan's status. Both the US and China face problems of their own which make them more vulnerable. • The very high military budget of the Us is a major drain on its resources especially as it is now No 2 in GDP. The lack of democratic systems in China and high levels of inequalities in several emerging superpowers (e.g. Brazil) pose threats. • Japan by contrast has lower levels of inequality and a smaller wage gap which may make it more sustainable. AO3 **Table 1** on the examination paper shows inequalities and happiness data which may be useful exploring issues in existing and emerging superpowers e.g. unhappy Chinese, very unhappy Indians. **Table 1** also shows that Japan remains the world's third largest economy. **Figures 1-7** and accompanying text show a mixed picture with demographic (population) issues and the threat of earthquakes posing significant challenges to Japan but also sects of its society that give cause for optimism e.g. low levels of inequality. Figure 8 shows that Japan is more globalised (as measured by KOF) than all its 'competitors' in the superpower stakes other than the US. Figure 8 also shows that Japan's economic score is relatively weaker than the other two. Figure 8 also shows that it isn't as globalised as any of its competitors, other than China in 'political' globalisation'. **Figure 9** shows that Japan has a relatively modest military budget. **Figure 9** also shows that almost all military budgets are dwarfed by the US. Figure 10 shows that Japan is modestly successful in its use of 'soft' power. Figure 10 also shows that Japan has improved its 'soft' power position between

- 2015 and 2017.
 Figure 11 shows that Tokyo is in the top-three global cities.
- **Figure 11** also shows that it is especially high scoring in 'Economy' and 'Liveability'.

Question number	6. Evaluate the view that Japan's status as a significant global power is not sustainable. (24) Indicative content
	Figure 12 shows that Tokyo and other Japanese cities are very exposed to risk of disasters with high costs to both people and the economy.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1-6	 Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) Applies knowledge and understanding of geographical information/ideas, making limited and rarely logical connections/relationships. (AO2) Applies knowledge and understanding of geographical information/ideas to produce an interpretation with limited relevance and/or support. (AO2) Applies knowledge and understanding of geographical information/ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2) Makes superficial judgements about the value and reliability of quantitative and qualitative data/evidence. (AO3) Investigates the question/issue to produce a limited interpretation of quantitative and qualitative data/evidence, but lacks meaningful connections to geographical ideas from across the course of study. (AO3)
Level 2	7-12	 Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1) Applies knowledge and understanding of geographical information/ideas with limited but logical connections/relationships. (AO2) Applies knowledge and understanding of geographical information/ideas to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2) Makes some valid judgements about the value and reliability of quantitative and qualitative data/evidence. (AO3) Investigates the question/issue to produce an interpretation of quantitative and qualitative data/evidence, making few connections to geographical ideas from across the course of study, which may not be meaningful. (AO3)

Level	Mark	Descriptor
Level 3	13-18	 Demonstrates geographical knowledge and understanding, which is mostly relevant and accurate. (AO1) Applies knowledge and understanding of geographical information/ideas to find some logical and relevant connections/relationships. (AO2) Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is supported by some evidence. (AO2) Applies knowledge and understanding of geographical information/ideas to come to a conclusion, largely supported by an argument that may be unbalanced or partially coherent. (AO2) Makes mostly valid judgements about the value and reliability of quantitative and qualitative data/evidence. (AO3) Critically investigates the question/issue to produce a coherent interpretation of quantitative and qualitative data/evidence, making connections to relevant geographical ideas from across the course of study, some of which are meaningful. (AO3)
Level 4	19-24	 Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) Applies knowledge and understanding of geographical information/ideas to find fully logical and relevant connections/relationships. (AO2) Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is supported by evidence. (AO2) Applies knowledge and understanding of geographical information/ideas to come to a rational, substantiated conclusion, fully supported by a balanced argument that is drawn together coherently. (AO2) Makes valid judgements about the value and reliability of quantitative and qualitative data/evidence throughout. (AO3) Critically investigates the question/issue to produce a coherent interpretation of quantitative and qualitative data/evidence, comprehensively making meaningful connections to relevant geographical ideas from across the course of study throughout the response. (AO3)