**Changing population**

**(1) (a) (i) Briefly describe the pattern of HDI in Africa  [2]**

* HDI is very high in North Africa in particular **(1)** in particular in Algeria, Tunisia and Libya **(1)**
* HDI is low in most Sub-Saharan African countries, especially in east Africa and Central Africa regions **(1)**
* HDI is medium in Southern Africa **(1)**, and several other countries including Nigeria and Egypt **(1)**

**(ii) Describe what HDI is [2]**

Human Development Index is multi-component measure of development**(1)** It uses life expectancy, adult literacy rates and Gross Domestic Product to form a score of 100 **(1) Accept words to that affect**

**(b) Describe and explain economic development at the global scale in terms of core periphery patterns**  **[2+2]**

**Describe**

Award**(1)** mark for effective definition e.g. Core - periphery patterns refer to the spatial pattern and relationship between regions of economic power and economic development and regions of lower economic development and influence **(1)**, at the global scale for example core regions include USA and Europe with the periphery including some Asian economies**,**African and South American  economies**(1)**

**Explain**

Award**(1)**mark for a clear explanation e.g. core regions develop due natural geographical advantage e.g. trade routes or from advances in technology **(1)**Periphery regions lag behind due to natural geographic disadvantage e.g. remoteness **(1)**. Economic flows transfer from the core to the periphery**,**in terms of products and foreign Direct Investment **(1)**periphery regions tend to be used for low-cost labour or resources**(1)**

**(c) Explain one economic push factor relating to voluntary migration [2]**

Award**(1)**mark for a clear explanation e.g. lack of employment opportunity **(1)**poor health care and education**(1)**. Give an additional **(1)** mark for developing the explanation e.g. unemployment leads to insecurity and financial hardship which encourages people to choose to migrate**(1)**poor health care and education means a lack of sufficient care and opportunities, families therefore decide to migrate away**(1)**

**Global Climate Vulnerability and Resilience**

**(2) (a)    (i) State (1) the lowest level of net radiation and (2) it location [1]**

-130 watts per m2

82 degrees north

**ii) State (1) the highest level of net radiation and (2) its location  [1]**

80watts per m2

0 degrees or the Equator

**(b) Explain two reasons for the spatial variation in net radiation   [2+2]**

Award**(1)** mark for correct reason e.g. The angle of incident is highest at the equator **(1)** there is more ocean in the southern hemisphere. Award a further**(1)**  for development e.g. with a high angle of incident solar radiation is more concentrated over the Tropics and with a shorter distance to travel through the atmosphere it provides more insolation compared to the higher latitudes **(1)**Ocean has a higher specific heat **(1)** and lower albedo compared to icy land surface and so it retains insolation better**1).** The northern hemisphere will have higher albedo and reflect more **(1)**

**(c) Briefly explain two natural causes of changes to the global energy balance [2+2]**

Award**(1)** mark for correct natural cause e.g. Volcanic eruptions **(1)** Changes to solar output **(1)**Award a further**(1)**  for development e.g.Volcanoes release huge amounts of ash and sulfur dioxide which when combined with water vapour absorbs reflects a lot of insolation back into space contains changing the energy balance  **(1)** Changes occur due to natural solar cycles, one such cycle includes changes in the procession of the earth around the sun. Its orbit changes over time becoming more olyptical  impacting the amount and location of incoming insolation **(1)**

**Global Resource Consumption and Security**

**(3) (a) (i)  State the level of poverty reduction shown in the graph for China [1]**

It fell from from close to 1 billion people in 1981 to under 400 million people in 2011 **(1)**

**(ii)** **Briefly describe the pattern of poverty reduction shown in the graph** **[2]**

* China has dramatically reduced it poverty levels reducing it by over half **(1)**
* Poverty levels in India and other South Asian countries has risen in the same time period **(1)**
* Sub-Saharan Africa has seen an increase in poverty numbers almost doubling from 300 to 600 million **(1)**
* Poverty levels have the remained the same in low numbers in Latin America and the Middle East/ North Africa regions **(1)**

**(b) Explain two implications of poverty reduction in China for resource consumption**  **[2 +2]**

Award**(1)** mark for correct implication e.g. increased resource consumption through industry **(1)** Increased consumption of goods **(1)**Award a further**(1)** for development e.g. With improved wealth more industrial growth has occurred increasing China's demand for raw materials  **(1)** with poverty reduction  millions of Chinese now have grater spending power and so domestic fro goods and services increases impacting on resources **(1)**

**(c) Name and explain how one tool measures and compares patterns of  global consumption [1+2]**

Ecological Footprint **(1)**

Ecological footprint is a measure of the amount of land and resources an individual, or place consumes in supporting itself **(1)**. It combines the impact of water use, energy use, land area use and material use **(1)**. It's often quantified in number of hectares required to support an individual, which can be increased by the world's population to show how many worlds would required support the individual if everyone consumed that amount resources  **(1)**

**(4) Infographic Resource**

**(a) (i)  State the actual economic contribution of secondary cities**  **[1]**

40% of World's GDP

**(ii)     State the potential future economic contribution of secondary cities**  **[1]**

They could double or triple global GDP (1)

**(b) Explain why the data presented in infographic may be described as misleading [2]**

Award**(1)** mark for correct idea e.g. Future prediction is not certain **(1)** The source of the data is not made clear **(1)**Award a further**(1)** for development e.g. Predicting future trends is always uncertain and open to exaggeration and bias **(1)**  Lack of sources means the data's validity could be questioned as it prevents the reader from fully scrutinizing it **(1)**

**(c) With reference to the infographic evaluate one opportunity and one challenge that secondary cities face in meeting the SDG Target 11 [3+3]**

**Opportunity**

Award**(1)** mark for correct opportunity e.g. Potential future growth in global GDP **(1)** Support linkages to larger Metropolitan cities  **(1)**Award up to**(2)** marks for effective evaluation. e.g. secondary cities have enormous potential to increase global GDP due to their population size and economic linkages **(1)** With improvement to transport and governance, there is massive potential for growth **(1)**e.g.  through improving economic flows and transport connection between secondary cities and larger metropolitan regions greater economic growth can be achieved **(1)**. In addition this would increase investment in industries such as tourism, innovation and manufacturing **(1)**

**Challenge**

Award**(1)** mark for correct challenge e.g. Overwhelmed by rapid urbanization **(1)** Struggling with high rates of poverty **(1)**Award up to**(2)** marks for effective evaluation e.g. city authorities struggle to cope with pressures placed on housing, transport and services due to rapid growth **(1)**Cities lack the investment and their development can lag and struggle to grow  **(1)**  High rates of poverty places  a burden on city authorities, poor health and political instability hold cities back **(1)** In addition, the dominance of informal sectors leads to low government budgets and slow growth in investment **(1)**

**(5)   “For countries experiencing rapid population growth the potential demographic dividend offers more challenges than opportunities”. To what extent do you agree with this statement?** **[10]**

Marks must be allocated according to the mark bands for the 10 mark essay

Responses may tackle the question on a regional or national scale.  They should have a clear understanding of the term “demographic dividend” and assess the degree of opportunities and challenges that come with it. This is to be supported with a well-developed case study/studies or developed example(s).

 **Possible applied themes (AO2) demonstrating knowledge and understanding (AO1):**

* Growing active population size and lower birth rates along with lower life expectancy among the older generation provides a great opportunity for future economic growth and rapid leaps in economic development due a fall in dependency
* A large active population provides for increased production and productivity, an educated skill set, higher government revenues from taxation, resulting in an economic multiplier effect
* Due to lower dependency rates, households benefit from a lower burden of care
* This is a time that allows for greater female access to the workplace
* Challenges may include, inability to capitalize on the active population bulge, slower rates in the fall in fertility rates, loss of traditional values and attitudes, e.g. the new role of women
* In the short term countries need to cope with a youthful bulge and provide adequate education, health care and employment opportunities. Without they miss the opportunity of the demographic dividend

**Good answers may be well-structured (AO4)** and may additionally offer a **critical evaluation (AO3)**which evaluates the relative importance of opportunities and challenges of demographic dividend climate change or other

**For 5–6 marks**

Expect weakly-evidenced outlining of climate change and/or migration themes.

**For 7–8 marks**

Expect a well-structured account, which includes:

Either a well evidenced synthesis, which links together several well-evidenced climate change and migration themes from the Guide

Or a critical conclusion (or on-going evaluation) informed by geographical concepts and/or perspectives

**For 9–10 marks**

Expect both traits

(**6) “Water security is the most important issue facing countries today”. To what extent do you agree with this statement?   [10]**

Marks must be allocated according to the mark bands for the 10 mark essay

Responses may explain that the “importance” of water security depends on the nation in question due to differing levels of for example: development, access to, production and consumption levels and climate.  These are some factors that may determine which resource (water, food or energy) is the most important for security.  For example for hot arid regions and countries with frequent droughts, water and food security may be more of a priority than energy. For other like China for all three may be equally as important

Responses may explain how recent trends in production, consumption, agriculture and industry as well as climate change, may be impacting upon the importance of water security in relation to energy and food security.  Stronger responses may explain how over time climate change is having more of an impact for some regions in terms of their water and food security.  Responses could explain the differing arguments that relate to population and resource consumption using the neo Malthus and anti-Malthus debate.

**Good answers may be well-structured (AO4)** and may additionally offer **a Critical evaluation (AO3)** which focuses on the recent past and explicitly addresses the issue of “most important” using national examples.  Responses could evaluate the relative importance of water security in relation to resource security and the possible interactions  between the two.  Another approach might be to evaluate the different time scales over which the importance of water, food and energy may vary in importance.

**For 5–6 marks**

Expect weakly-evidenced outlining of water and/or resource security themes.

**For 7–8 marks**

Expect a well-structured account, which includes:

Either a well evidenced synthesis, which links together several well-evidenced resource security themes from the Guide

Or a critical conclusion (or on-going evaluation) informed by geographical concepts and/or perspectives

**For 9–10 marks**

Expect both traits