

Markscheme

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Geography

Higher level and standard level

Paper 2

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Section A

1. Changing population

- (a) Outline what is meant by “fertility rate”. [2]

The number of children/number of births per 1000 women [1] a woman gives birth to during her lifetime/fertile years/reproductive age/below 50 [1].

- (b) Suggest **two** reasons why fertility rates decline when the status of women is improved. [2+2]

In each case, award [1] for a valid reason and [1] for development of how it impacts upon the fertility rate.

Possibilities include:

- Employment – delayed marriage and delayed childbirth.
- Access to family planning services.
- Education for women – delays marriage/childbirth.
- Reduced child mortality rates – fewer replacement births.
- Societal status of women – women have more freedom and rights, thus giving them more decision-making powers

For example: One reason is because women have more access to contraception and birth control advice [1] which means they have more control over the number of children in their families [1].

- (c) Explain why some places have an uneven sex ratio as a result of:

- (i) migration; [2]

Answers may refer to source or destination places and can be based on international/regional/rural:urban migration.

Award [1] for a basic explanatory comment and [1] for further valid explanation/exemplification linked to a valid and identified uneven sex ratio.

Valid reasons may include:

- Migration of males to find work gives higher proportion of males in working in destination countries/gives lower proportion of males in origin countries.
- Inability of male labourers to bring families with them gives higher proportion of males.
- Migration of female domestic and care labour eg Sri Lanka leaves a gap in the middle age female groups.
- Migration of males of fighting age to join armies, leaves places with a higher proportion of young females.

For example: Influx of male construction workers into an oil rich nation such as UAE [1] so there tends to be a larger proportion of men than women [1]

(ii) an ageing society.

[2]

Award [1] for a basic explanatory comment and [1] for further explanation/exemplification linked to a valid and identified uneven sex ratio.

Valid reasons may include:

- Macho culture encourages risky behaviour meaning higher mortality as the population ages.
- Males occupy dangerous jobs that lead to a higher mortality leaving a smaller proportion of males in older age groups.
- Child mortality is higher amongst boys, more females survive until old age.
- Biological difference in chromosomes and hormones, females are advantaged [less fat surrounding organs] and live longer.
- Females more willing to consult medical advice, live longer.

For example: Women tend to have higher life expectancies than men [1], so in the over 65s there tends to be a greater proportion of women than men [1].

2. Global climate – vulnerability and resilience

(a) Identify **one** region showing:

- (i) an extensive positive anomaly of +12°C; [1]

South/South East Greenland
central/eastern/N/NE USA
central North America
central Asia
E/NE Australia

- (ii) an extensive negative anomaly of –12°C. [1]

southern Africa
western/NW Australia
western USA
SW Asia

(b) Outline how extreme warming can affect:

- (i) the albedo of a region; [2]

In each case, award [1] for a valid comment on effects of extreme warming and [1] for the impact on albedo.

Valid effects may include:

- Decrease in the amount of ice, decrease in albedo less energy reflected.
- Increases amount of cloud through increased evaporation, increases albedo.
- Increased heat causes wildfires which destroy vegetation, increases albedo.
- Expansion of deserts due to water loss decreases vegetation, increases albedo.

For example: Extreme warming is going to melt ice in the polar regions [1] and therefore the surface will reflect less solar radiation and decrease albedo [1].

OR

Extreme warming may increase evaporation in tropical areas [1], which can reduce vegetation cover and increase albedo [1].

- (ii) the operation of a feedback loop. **[2]**

*In each case, award **[1]** for the valid identification and description of a loop and **[1]** for development linked to impact*

Valid loops may include:

Positive loops

- Release of methane from frozen ground, causes increase in greenhouse gases which gives more warming.
- Warming of atmosphere leads to more evaporation, causes more water vapour which traps heat and amplifies initial warming.
- Warming melts ice which decreases albedo so absorbed heat warms atmosphere which melts more ice.
- Warming gives conditions perfect for wildfires, causes release of more GHG/shrink forests as a carbon sink.
- Warming causes the oceans to increase in temperature and become less efficient as a carbon sink, this increases the CO₂ in the atmosphere which further increases warming.

Negative loops

- Increase in temperature increases the amount of cloud cover, decrease incoming solar radiation and decrease warming.

For example: Melting of frozen ground releases methane/greenhouse gas **[1]** so there is more warming and more melting **[1]**.

- (c) Explain **two** ways in which climate change impacts upon ocean transport routes. **[2+2]**

In each case, allow [1] for a valid way and [1] for development/exemplification of impacts on ocean transport routes.

Valid possibilities include:

- Warming may decrease the amount of sea ice and so ice-bound ports may be more accessible all year round.
- Warming may increase the occurrence of natural hazards, such as hurricanes/storms, these would make some routes more dangerous and hazardous to navigation.
- Increased natural hazards (storms and storm surges) may damage infrastructure, interrupt operations at terminals.
- Climate change may result in sea level rise which leads to more frequent flooding of port facilities.
- Existing routes may no longer be safe due to icebergs/increased sedimentation due to worsening coastal erosion, re-routing becomes more common.

For example: New sea routes opening up as sea ice melts **[1]** and allows passage through areas previously ice bound for large parts of the year **[1]**.

3. Global resource consumption and security

- (a) Outline **two** differences in the growth of the middle-class population of Ukraine and Serbia. **[1+1]**

Award [1] per correct point. Quantification of at least one valid point needed for both marks.

Possibilities include:

- More growth in Ukraine
- Ukraine has overtaken Serbia
- Ukraine starts at lower %

- (b) Explain how the growth of a country's middle-class population can lead to:

- (i) changing diets; **[2]**

Allow **[1]** for a valid dietary change and **[1]** for an explanation of why this is happening due to growth of middle class.

Valid possibilities include:

- Increase in meat/dairy consumption – due to increase in wealth, expensive foods are affordable.
- Diversification of diet as increase in wealth enables more imported food.
- Increase in healthy eating, middle class are educated and can see benefits of healthy diets.
- Reduced intake of coarse grains and vegetables.
- Increased intake of sugars, Westernized diets affordable

For example: Middle income groups are now eating more fast foods and processed foods **[1]** as they have more disposable income **[1]**

- (ii) land-use pressures. **[2]**

Allow [1] for a valid land-use change and [1] for an explanation of the pressure this creates for another land use or user group.

Valid possibilities include:

- more cropland needed, cutting down of forests/expansion onto marginal land
- transport infrastructure
- land used for housing developments, as people become richer and no longer have to live with parents
- land acquisition in developing countries by transnational companies for food and minerals, takes land from indigenous populations.

For example: Middle income groups have more money and aspirations and want to live in their own houses **[1]** this increases the demand for housing which is built on land previously covered by trees **[1]**.

(c) Suggest **one** way in which greater use of renewable energy can:

- (i) decrease the size of a nation's ecological footprint; **[2]**

Award [1] for a valid way and [1] for development linked to decrease in ecological footprint (land/sea/vegetation).

Valid possibilities include:

- less need for fossil fuels like coal which means less land required to obtain energy
- less need for fossil fuels like oil which means less land/sea polluted by oil spills
- more energy is produced by wind farms which means less nuclear waste / land contamination issues
- renewable energy is produced without the burning of fossil fuels and the resultant emissions, so less land/vegetation/ocean is required to absorb greenhouse gases.

For example: Decreased use of fossil fuels because of switching energy sources **[1]** decreases the amount of land required for mining or disposal of waste **[1]**.

- (ii) increase the size of a nation's ecological footprint. **[2]**

Award [1] for a valid way and [1] for development linked to increase in ecological footprint.

Valid possibilities include:

- solar and wind farms require large areas of land and these can reduce the natural vegetation of an area
- valleys drowned for HEP reservoirs which reduces vegetation and covers areas of soil.
- use of electric cars increases demand for rare minerals which increases land destroyed by mining.

For example: Greater use of biofuels requires palm oil cultivation **[1]** across extensive areas of land **[1]**.

Section B

4. (a) (i) Estimate the percentage of women employed in the public sector. [1]
60–70%
- (ii) Determine the percentage of university graduates in the UAE who are men. [1]
30%
- (b) According to the infographic, 46% of STEM (science, technology, engineering and mathematics) graduates are women. Explain how **one** presentation method could be used to illustrate the details shown. [2]

Award [1] for identification of a valid technique such as bars graphs/pie charts/proportional symbols. Award further [1] for application to the details shown [constituents of STEM] – bars for each subject/segments for pie charts/separate symbols.

Award full credit for answers given as appropriate diagram.

- (c) Evaluate how far the evidence in the infographic supports the claim of the United Arab Emirates government that the country has achieved gender equality. **[6]**

Award [1] for each valid point and a further mark [1] for supported development/exemplification up to a maximum of [5]. Award the final [1] for an overall appraisal that weighs up the infographic as a whole

Award a maximum of [4] if only one perspective is given.

Pro gender equality

- ranks 1 in women's literacy
- women make significant contributions to the workforce, 50% of UAE space program are women
- women have good access to education, 70% of graduates are women
- women have obtained high standards of education – 77% enroll in higher education after high school
- UAE requires females on board of every company
- women make up high proportion of public sector workforce, 60-70% of the workforce in the public sector are females
- recognized by international organization WEF/official governments.

Against gender equality

- not equal in important government positions, 25% only of cabinet level positions
- women-owned business is not an important part of the economy, only contributes 10% of value of private sector
- data shows male inequality
- law only requires one female board member and there can be many men
- statement is from a government spokesman and so could be biased
- information provided is narrow interpretation of gender equality

Example: The infographic does show that many women are well educated **[1]** as 77% of Emirati women enrol in higher education after secondary school / 70% of graduates are women **[1]**. Women are also well represented in the workforce **[1]** making up a significant proportion of the government workforce **[1]**. However, information on the infographic about the public sector shows women are not as well represented in higher political life **[1]**. Overall the claim that they have the best gender equality has insufficient support from the examples shown in the infographic **[1]**.
