Diploma Programme
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Markscheme

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Geography

Higher level and standard level

Paper 2

11 pages

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 +12ºC; **[1]**

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

(ii) an extensive negative anomaly of –12ºC. **[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 CO_2 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 import 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]**.