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**ENVIROMENTAL MANAGEMENT**

**0680/23**

Paper 2

**October/November 2017**

MARK SCHEME

Maximum Mark: 80

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**Published**

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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This document consists of **9** printed pages.

Question	Answer	Marks						
1(a)(i)	the movement of people from the countryside to the, towns / cities;	1						
1(a)(ii)	<table border="1" data-bbox="322 284 1330 437"> <thead> <tr> <th data-bbox="322 284 826 333"><i>push factors</i></th> <th data-bbox="826 284 1330 333"><i>pull factors</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="322 333 826 383">few doctors</td> <td data-bbox="826 333 1330 383">jobs in industry</td> </tr> <tr> <td data-bbox="322 383 826 437">lack of schools</td> <td data-bbox="826 383 1330 437">better paid jobs</td> </tr> </tbody> </table> <p data-bbox="1330 400 1361 427">∴</p> <p data-bbox="322 472 622 499"><i>3 or 4 correct [2 marks]</i></p> <p data-bbox="322 504 611 531"><i>1 or 2 correct [1 mark]</i></p>	<i>push factors</i>	<i>pull factors</i>	few doctors	jobs in industry	lack of schools	better paid jobs	2
<i>push factors</i>	<i>pull factors</i>							
few doctors	jobs in industry							
lack of schools	better paid jobs							
1(b)(i)	<i>any two from:</i> (north) east of Brazil; coastline of, Atlantic Ocean / Brazil; latitude reference;	2						
1(b)(ii)	<i>any three from:</i> it is dry / not much rain / drought; so crops fail; difficult to grow crops; so food shortages; cannot sell crops to earn money; have to move to city to find work;	3						
1(b)(iii)	<i>any three from:</i> some vegetation is low to the ground; has, thorns / spikes; thin branches; fleshy stems; sparse vegetation; few / no leaves on bushes / shrubs; named example, e.g. cactus;	3						
1(b)(iv)	to collect rainwater / maximise uptake of water / to collect water, as the climate is very dry / rainfall is low;	1						

Question	Answer	Marks
1(b)(v)	<p><i>any five from:</i></p> <p><i>overgrazing;</i> removal of vegetation; less roots to bind soil; compaction of top soil;</p> <p><i>overcultivation;</i> exhausts the soil of nutrients; soil more exposed to wind and water; so no vegetation can grow; salinisation due to irrigation;</p> <p>loss of soil structure (linked to either group);</p>	<b>5</b>
1(b)(vi)	<p><i>any three from:</i> education about conservation / noticeboards / leaflets; rangers; planting schemes; land use zoning; creating footpaths; fencing areas; legislation to protect, wildlife / area;</p>	<b>3</b>
1(c)(i)	1963 / 1964;	<b>1</b>
1(c)(ii)	allow answers in the range 19.5–20 million;	<b>1</b>
1(c)(iii)	allow answers in the range 9.0–9.5 million;; <i>(if answer incorrect, allow one mark for correct method [1]);</i>	<b>2</b>
1(c)(iv)	<p><i>any two from:</i> natural increase / births higher than deaths; any valid reason for high birth rate; any valid reason for low death rate;</p>	<b>2</b>

Question	Answer	Marks
1(d)(i)	bar correctly plotted at 75; bar correctly plotted at 90; correct shading according to key;	<b>3</b>
1(d)(ii)	<p><i>any five from:</i></p> <p><i>underground sewer:</i> sewage no longer in open drains but goes underground; so less disease; such as typhoid or example; and fewer bad sights and smells;</p> <p><i>electricity wires:</i> provides a power supply to the house; so easier to have heating, lighting etc.; so children able to, read / work in the evenings; safer supply; reduces reliance on wood for cooking meaning less respiratory issues;</p> <p><i>water tank:</i> provides clean rainwater; so less time spent collecting water from shared tap; reduces spread of water-related diseases;</p> <p><i>sink:</i> allows a place to wash, dishes / clothes; so less time spent walking to communal areas; and more hygienic;</p> <p><i>building blocks:</i> house made of proper materials not scraps; so more able to withstand the weather; or more stable; security;</p> <p><i>concrete floor:</i> reduces, mud / dust; easier to clean;</p>	<b>5</b>

Question	Answer	Marks
1(e)	<p><i>Level of response marked question:</i></p> <p>Level 3 [5–6 marks] Strategies are described using developed statements. Responses are likely to include a diverse range of potential solutions.</p> <p>Level 2 [3–4 marks] Uses developed ideas to describe strategies. Some development may be limited and may be more focussed on a narrow range of potential solutions.</p> <p>Level 1 [1–2 marks] Describes strategies in simple terms or a list. Lack of structure to the response which may contain irrelevant information or potentially contradictory.</p> <p>No response or no creditable response [0].</p> <p><i>Level of response marking indicative content:</i> Candidates will usually cover family planning, including the availability of advice and contraception. Most will also discuss improving education, which might include the education of medical staff, education on contraceptives, education of women and access to work. Some candidates might discuss improving health, for example post and antenatal care, and therefore a reduced need for so many children. Candidates may also consider government decisions, such as population policies, incentives or taxes, immigration or migration, encouraging later marriage and creating jobs for women.</p>	<b>6</b>

Question	Answer	Marks
2(a)(i)	–23(°C); July; <i>from –23 to 18(°C);</i>	<b>3</b>
2(a)(ii)	<i>any three from:</i> decrease in precipitation Jan–April; increase May–Aug; decrease Sept–Dec; greatest in June–September; highest amount, in August / 53 mm; lowest amount, in April / 7 mm; any other month with figure; all months have precipitation;	<b>3</b>
2(a)(iii)	7 / seven;	<b>1</b>
2(b)(i)	<i>needle shaped leaves</i> to reduce water loss through transpiration; <i>thick bark</i> to protect from extreme cold; <i>downward sloping branches</i> to shed snow;	<b>3</b>
2(b)(ii)	<i>any two from:</i> it is too cold / frozen; not optimum temperature for bacteria / decomposers; acidic soils limit bacterial action;	<b>2</b>
2(c)(i)	grass OR conifers;	<b>1</b>
2(c)(ii)	grey wolf / bobcat / hawk owl / bear;	<b>1</b>
2(c)(iii)	bear;	<b>1</b>

Question	Answer	Marks
2(c)(iv)	<p>(conifers) – moose – grey wolf – bear ;;; OR (conifers) – caribou – grey wolf – bear ;;; OR (conifers) – squirrel – grey wolf – bear ;;; OR (conifers) – squirrel – bobcat – bear ;;; OR (conifers) – squirrel – hawk owl – bear ;;;</p>	<b>3</b>
2(c)(v)	<p><i>any three from:</i> more, grass / conifer; more food for, caribou / moose; less food for, hawk owl / bobcat; bears diet may change; greater predation of, caribou / moose; AVP;</p>	<b>3</b>
2(c)(vi)	<p><i>any two from:</i> competition – new species introduced; predation – new predator introduced; disease reduces numbers; change in climate; habitat loss;</p>	<b>2</b>
2(d)(i)	to reduce water loss;	<b>1</b>
2(d)(ii)	to shed water in the heavy (monsoons) rain; maximise, transpiration / photosynthesis / absorb sunlight;	<b>2</b>

<b>Question</b>	<b>Answer</b>	<b>Marks</b>
2(e)(i)	<p><i>any four from:</i>            nitrous oxide / sulfur dioxide;            released by, cars / power stations / industry;            pollutants blown by the wind;            mix with, water vapour / clouds;            which becomes acidic;            acid rain falls / acid precipitation;</p>	<b>4</b>
2(e)(ii)	<p><i>any one from:</i>            kills trees / leaves fall off;            soils become acid;            lakes and rivers, become acidic / lower pH;</p>	<b>1</b>
2(e)(iii)	<p><i>any three from:</i>            removal of trees which are a natural carbon sink;            more carbon dioxide / less photosynthesis;            increased decomposer activity increases carbon dioxide;            burning of trees releases carbon dioxide;            increase in greenhouse effect;            so more heat is trapped;            machinery / transport creates carbon dioxide;</p>	<b>3</b>



Question	Answer	Marks
2(f)	<p><i>Level of response marked question:</i></p> <p>Level 3 [5–6 marks] Developed ideas used to describe both viewpoints. Provides a balanced answer which demonstrates an understanding of the complexities of the issue.</p> <p>Level 2 [3–4 marks] Ideas used to describe both viewpoints or more developed ideas are used to describe one viewpoint.</p> <p>Level 1 [1–2 marks] Simple ideas used to describe one or both viewpoints. Information is limited and brief and may be repetitive.</p> <p>No response or no creditable response [0].</p> <p><i>Level of response marking indicative content:</i> Candidates may cover a number of reasons for and against forest development. They may consider exploiting versus conserving resources from forests and may include specific examples. They could consider employment opportunities in development versus conservation of existing lifestyles. Some will consider the possible income from resources and exports at local, national and international levels. Many candidates will recognise the need for land and that forests could be used to develop the economy of a country. Land may be needed for settlements, urbanisation, food production, agriculture or cash crops. Many candidates will also consider the effect this has on the environment, for example, loss of habitats, soil erosion, desertification and the displacement of people. Candidates may include a diverse range of evidence as part of their response.</p>	6