

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the October/November 2015 series

5014 ENVIRONMENTAL MANAGEMENT

5014/21

Paper 2, maximum raw mark 60

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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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- 1 (a) increasing population; more crops for export; increasing wealth; from industrial/service sector; AVP; [2]
- (b) rainfall: WZ more rainfall/DZ less rainfall; use of data;
 wet days: WZ more/DZ less; use of data;
 temperature: WZ only 2°C range/eq., DZ 6°C range/average temperature higher in DZ; use of data; [3]
- (c) (i) (enough rain) to allow germination/eq./allows crop to continue growing/eq.; [1]
- (ii) removes competing plants; removes pests; adds nutrients/minerals to the soil; makes soil more fertile; no plants to take up water; so soil becomes moist; more light gets to plants for faster growth; [2]
- (iii) not much rainfall; some plants/weeds will grow; so intercept rainfall/prevent run-off; roots bind soil; ref. to high rate of evapotranspiration/evaporation; [3]
- (iv) land is left to recover/eq.; fertilisers/pesticides not needed; low input low output method; soil structure/fertility not damaged in the longer term; [2]
- (d) (i) $(87.4 - 61.2 =) 26.2$;
 $42.8/43(\%)$;
Award two marks for the correct answer alone. [2]
- (ii) increase in volume of milk imported; price increases/idea of supply and demand; increased costs of production; example of increased cost; inflation; [2]
- (iii) 2009 with reasons for drop in value and volume of imported milk, e.g. less milk consumed/domestic production increased; so less demand; AVP; [2]
- (e) (i) y-axis labelled with units; maize produced plotted; maize imported plotted; (allow one error per plot) key used/identifies lines; [4]
- (ii) production: increased (until 2010) then decreased; imported: (initial increase) then/general decrease; [2]
- (iii) in 2007 to 2010: more maize harvested due to better seeds/better seed selection/GMO/eq.; more land area planted; more machinery used; more irrigation used; better prices/more demand; use of affordable/better fertiliser; AVP, e.g. imports too expensive; favourable conditions for maize growth; in 2010–2011: converse of above; ref. to less maize as other crops more profitable; [3]

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- (f) farmers can afford to pay for a cow/more cows; over several years; animals have better health/diseases treated; so more milk; imported cows may produce more milk/eq.; imported cows increase total number of cows; can be crossbred with local cows; to improve milk production; [4]
- 2 (a) (i) 12.5 million; (*Allow 12 500 000.*) [1]
- (ii) jobs that supply services/materials to the port or port workers/eq.; jobs such as food delivery/ship repair/laundry/hotels for crew members/other valid examples; [2]
- (iii) to protect from storms/cyclones/hurricanes; tsunami; prevent damage to ships; and cargo; so port can always work; ref. to rising sea levels/frequency of storms due to climate change; [3]
- (b) (i) deforestation; loss of habitat; loss of endangered species; scare wildlife away; soil erosion; air/dust/visual/noise pollution; damage to roads; [3]
- (ii) sand would only have to be dumped somewhere else; possible damage of dumping/sustainable used of sand; saves fuel/transport costs/eq.; save labour costs; [2]
- (c) (i) key completed; three schools and two green spaces; road network that works and buildings other than schools; any other two features, such as a marina/a specific service, e.g. gas lines, sewage pipes; [4]
- (ii) high spec. building, e.g. solar panels/small wind turbines; good insulation; use of recycled materials; another valid example; all sewage collected; so no organic matter pollution; all garbage recycled/collected; so no visual pollution/spread of disease; green spaces/parks; absorb air pollution; AVP, e.g. transport related; [4]
- (d) extra interest has to be paid; so less contribution to GDP/eq.; no jobs, so unemployment remains; no improvement in standard of living; no taxes paid; AVP; [2]
- (e) (i) can survey people with low literacy skills; make sure data is collected; [1]
- (ii) valid selection method, e.g. stratified/equal numbers for each age/gender group; several different interest groups/named groups; [2]
- (iii) (add up answers) and express as a percentage response/pie chart/eq.; [1]
- (iv) suitable questions related to the text given, e.g. Do you own land?/size of land owned/buildings owned/sources of income/compensation paid; [3]

AVP = Alternative Valid Point.

[Total: 60]