Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/42**

Paper 4 Alternative to Coursework **March 2017**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)	46 / 46.0 / 46.02 / 46.023 / 46.0228 / 46.0229;; (*if answer incorrect, allow one mark for correct method, e.g. 6 million ÷ 130 370 [1]*)	**2**
1(b)(i)	*any two of:* mostly rely on subsistence farming; only, part time / seasonal work in tourism; no industrial jobs; no highly paid jobs; high unemployment / eq; lack of health care / presence for serious disease; lack of land to grow food; AVP, e.g. rely only on tourism and farming;	**2**
1(b)(ii)	*any two of:* to earn money from canal charges; to attract investment; create jobs in, construction / canal management; improve the economy (of the country) / more, imports / exports / trade; AVP;	**2**
1(c)(i)	**A** 274; **C** 274; (*allow answer within the range of 260–290 for each measurement*)	**2**
1(c)(ii)	(*route*) **A** and (*reasons*) destruction of wetlands; *or* (*route*) **C** and (*reasons*) destruction of biosphere resource;	**1**
1(d)(i)	*any two of:* (more) sediment reduces photosynthesis; kills, plants / producers; reduced biodiversity / so some species, reduced / die out; food chains altered / described;	**2**

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Question	Answer	Marks
1(d)(ii)	*any two of:* a named pollutant e.g. oil / fuel oil; more waves (damaging shoreline); reduced water quality, e.g. more turbid / described;	**2**
1(e)(i)	table drawn; headings with units (metres / m and tonnes / t); data correctly entered;	**3**
1(e)(ii)	*any two of:* need to find the investment money / some investment from overseas; training workers / getting skills; finding labour force; planning permission / land purchase; relocating local people; getting, materials / equipment; AVP, e.g. size of project;	**2**

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Question	Answer	Marks
2(a)	*any three of:* ocean temperature (at surface of pacific) warmer than average / eq; ocean currents change (direction); changes in rainfall patterns; weaker winds over the equator / wind direction reversed; AVP;	**3**
2(b)(i)	78.4 / 78.40 / 78.41;; (*if answer incorrect, allow one mark for correct method, e.g. 1074 – 602 = 472 [1] or 472 ÷ 602 × 100 [1]*)	**2**
2(b)(ii)	reduced supply of beans; same / increased demand (so prices rise);	**2**
2(b)(iii)	source of, protein / carbohydrate / vitamins / minerals / fats;	**1**
2(c)(i)	*any two of:* tests three different volumes of water; volume, stated in method two / not stated in method one; so method one could not be repeated / eq;	**2**
2(c)(ii)	*any two of:* temperature; pH of water; light; size of dishes;	**2**
2(c)(iii)	*any one of:* number of leaves produced; mass of seedlings; length of, root / shoot / whole seedling;	**1**
2(d)(i)	orientation; all plots correct; axes fully labelled with units (cm^3 and days);;	**4**
2(d)(ii)	as volume increases survival time increases **and** levels off / eq;	**1**

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Question	Answer	Marks
2(d)(iii)	(*month*) September; (*reason*) rainfall too high for survival of seeds; *or* (*month*) February; (*reason*) rainfall too low for germination; *or* AVP, e.g. December or May with valid reasons;;	**2**
2(d)(iv)	*any two of:* bean plants fix nitrogen; so plant can make protein; reference to root nodules / bacteria in roots; remains of, first crop / roots release, ammonia / nitrites / nitrates into the soil;	**2**
2(e)(i)	*any three of:* heavy rainfall not intercepted / lack of vegetation / eq; surface run-off on slopes; top soil / soil / surface, washed away; rill formation / rill formation described; enlarges to gully;	**3**
2(e)(ii)	*any four of:* place two poles a, measured / stated distance apart; place float in channel (upstream); start stopwatch as float passes; stop stopwatch at second pole; record time; repeat; find average; rate = distance ÷ time;	**4**

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Question	Answer	Marks
2(e)(iii)	*any one of:* have you made more profit?; do you think the extra work was worth it?; can you maintain the check dam?; do you use less fertiliser?; can you grow other crops?; AVP;	**1**
2(e)(iv)	check dams, slow down / stop, the flow of water; so more time for infiltration / eq;	**2**

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Question	Answer	Marks
3(a)(i)	anemometer;	**1**
3(a)(ii)	(*highest*) 17 **and** (*lowest*) 11; (*range*) 6 *or* 11–17;	**2**
3(a)(iii)	*any two of:* winds mostly blow in the same direction; more efficient generation / eq; so turbines do not need to keep turning into the wind / eq; turbines might last longer;	**2**
3(b)(i)	*any two of:* no carbon dioxide released; no other named pollutant released; does not contribute to global warming; sustainable, as a renewable / not finite resource; turbines cheap to run / low maintenance cost / eq;	**2**
3(b)(ii)	*any three of:* keep industry making, money / products; keep tourism making money; keep hospitals running; keep computer systems running; power cuts increase crime / eq; to maintain lifestyle / to encourage economic activity; AVP, e.g. refrigeration / air conditioning not reliable;	**3**

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