CAMBRIDGE
INTERNATIONAL EXAMINATIONS

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International General Certificate of Secondary Education

MARK SCHEME for the November 2003 question papers

0670 NATURAL ECONOMY

0670/02 **Paper 2, maximum mark 80**

0670/04 **Paper 4 (Alternative to Coursework), maximum mark 60**

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2003 question papers for most IGCSE and GCE Advanced Level syllabuses.

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Local Examinations Syndicate

Grade thresholds taken for Syllabus 0670 (Natural Economy) in the November 2003 examination.

	maximum mark available	minimum mark required for grade:			
		A	C	E	F
Component 1	60	44	34	24	20
Component 2	80	56	40	27	22
Component 3 (Coursework)	30	22	15	11	9
Component 4	60	43	33	26	20

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.
Grade A* does not exist at the level of an individual component.

CAMBRIDGE
INTERNATIONAL EXAMINATIONS

November 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 80

SYLLABUS/COMPONENT: 0670/02

NATURAL ECONOMY
Paper 2

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1 (a) (i) Above 30m high,
reach above the top of the forest,
branches only at the top,
two other less precise/more general points
2 @ 1 mark [2]

(ii) Canopy layer is indicated,
a layer of smaller trees and saplings is shown,
at least three different layers suggested on the diagram.
Two points made along these lines. [2]

(b) Hot all year,
supported by values e.g. 27°C,
wet all year,
supported by values e.g. above 1500mm per year,
continuously high humidity.
Any 3 @ 1 mark [3]

(c) (i) Refers to the recycling of nutrients,
dead leaves etc. drop to forest floor where they decay,
and are decomposed,
taken up again by the plant roots.
Full understanding = 3 marks
Some understanding = 1 or 2 marks [3]

(ii) Rain shown not to be able to reach or penetrate easily into the ground,
wind is kept from reaching and blowing away the soil,
either point further developed to indicate the key protective role of the vegetation

2 points or one point well developed [2]

(d) (i) River is the key to the answer - credit any points that can follow from this, such as water for washing, fish, access etc.
If the river is not used, it may be possible to squeeze one mark from closeness to the cultivation plots. [2]

(ii) (Undisturbed) natural rainforest [1]

(iii) 27 or 30 years = 1 mark
There are ten plots and each one is used for 3 years, or 9 plots unused for 3 years = 27, = one kind of justification for the second mark. [2]

(iv) Areas used for growing crops are rotated,
which gives the land time to recover before being used again,
most of the area is still covered by undisturbed natural rainforest,
which can be used to supply people with other foods and needs.

Points made along these lines. Any three @ 1mark [3]

(e) Choice of bar graphs = 1
Accuracy of plots irrespective of method
4 correct = 2 marks; 2 or 3 correct = 1 mark;
1 correct = 0 mark
Overall effectiveness = 1 mark [4]

(f) (i) Cattle rearing

(ii) There are still trees/woodland in the background,
reference to the wooden fence with comment.
Any one [1]

(iii) There is a good covering of grass at the moment,
which should reduce the possible effects of wind and rain,
but the covering isn't as good as it would have been with all the trees present,
and in time the grass may be more heavily grazed increasing the risks of soil erosion,
still some trees present to give shelter.

Points made along these lines. 3 @ 1 mark [3]

(g) (i)(ii) Mark overall.

(i) Whole area cleared by logging companies,
irrespective of the usefulness of the trees to them,
commercial companies are only interested in the profits that can be made,
taking environmental considerations into account reduces profits.
Up to 3 marks depending on understanding and amount of comment.

(ii) Strategies include selective logging, agro-forestry, community forestry, reforestation.

Up to 3 marks depending upon amount and quality of the description.
3 + 1 or 1 + 3 or 2 + 2 [4]

(h) (i) Reduced biodiversity - either species become extinct, or less chance of breeding improved crop varieties.

Change in the local environment - either surface run off increases, or soil erosion leads to sediment blocking rivers.

Changes in the global environment – either carbon store in trees is reduced, or changes in world temperature occur.

3 @ 1 mark [3]

(ii)(iii) Mark together.

Definition - Great numbers and variety of different species of plants and animals.

Worth up to two marks if well expressed and exemplified.

Importance - Sources of foods, medicines, new varieties of crops, maintains healthy living communities etc.

Worth up to three marks if well expressed and exemplified.
2 + 2 or 1 +3 for 4 marks. [4]

Total: 40

2 (a) (i) Towards each other/into the middle [1]

(ii) Destructive/convergent [1]

(iii) Volcanoes - places were magma forms as a result of the plates colliding and where it can find openings through which to reach the surface (partly shown on the diagram).

Earthquakes – friction as the two plates are forced against each other; earthquakes form in the subduction zone (shown on the diagram).

Note that the answer can be broadened to include other types of plate boundaries.

Reserve 1 mark for volcanoes and 1 for earthquakes. [4]

(b) (i) Iran [1]

(ii) No loss of life,
the strongest earthquake. [2]

(iii) One mark for plotting accurately number dead,
one for size. [2]

(c) (i) Walls of house shook violently,
tables and cupboards moved,
felt the earth tremors.
Any 2 2 @ 1 mark [2]

(ii) Go out on to the street/into an open space,
to reduce the risk of anything falling on top of you.
= 2 mark answer based on source content.

Allow also use of knowledge for times when it is not possible to get out e.g. hide under the strongest support in the house - up to 1 mark. [2]

(iii) Location below a tree covered mountain side,
road running through the middle of it with streets leading off it,
most houses on the lower ground but with some new mansions on the lower slopes.
Two descriptive points made along these lines. [2]

(iv) A great mudslide had cut the settlement into two parts,
which had removed everything in its path, including over 300 houses.
Full description = 2 marks. Some = 1 mark [2]

(v) The earthquake and the mudslide it caused were natural factors.
People claimed that the hillside had been made unstable by building the new houses, which was a human factor.
Clearly identified up to 2 marks.
View expressed = 1 mark. [3]

(d) (i) Collapse of buildings/covered by massive piles of rubble [1]

(ii) Bachau was located closer to the centre of the earthquake,
this is where the full 7.9 force of the earthquake was felt,
the strength of earthquake tremors decrease with distance from the centre
e.g. Mumbai lies beyond the lines showing the main effects on the map,
damage done within half a minute in Bachau as opposed to 45 minutes of tremors for the full effects in Ahamabad.

Three points made along these lines. 3 @ 1 mark [3]

(iii) So many bodies are never recovered because they are buried under masonry, mud etc., others may be destroyed in fires, it is a time of great chaos so that counting becomes impossible, impossible to know how many are in offices and houses when earthquake strikes.

Points made along these lines. [2]

(e) Focus was deep underground/50km below surface,
in solid (rather than soft) rocks,
buildings built to withstand earthquake shocks,
as high as 9.1 and this was only 6.8 in the Richter scale.

Any three points. 3 @ 1 mark [3]

(f) (i)(ii) Mark overall.

The best explanation will be that fits the opinion stated. Earthquake references from all parts of the question could be used in support of the answer.
Good content and understanding, well expressed to match stated opinion = 5 marks
Some good points made = 3 or 4 marks
One or two points made, which don't necessarily support the stated view = 1 or 2 marks [5]

(g) Ideas of types of responses.

Electric power cut off - can't see to rescue people in the dark, no power for operating rescue equipment, water pumps don't work etc.
Telephones don't work - can't communicate with government or between different rescue organizations, can't tell people outside what is needed etc.
Airports close - can't get hold of blankets, tents, food and other emergency needs, especially from overseas; foreign rescue teams can't reach the area affected; badly injured people can't be flown out to hospitals etc.
Roads blocked - people cannot easily get away from the area affected, go to stay with relatives or receive emergency supplies (especially from within their own country) etc.

Likely to be 2 @ 2 marks but allow 3 + 1 marks where the detail for one of the public services is pertinent and well developed. [4]

Total: 40

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MAXIMUM MARK: 60

SYLLABUS/COMPONENT: 0670/04

NATURAL ECONOMY
Alternative to Coursework

UNIVERSITY of CAMBRIDGE
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1 (a) 28.3; (allow 28/28.4) 2 marks
448 1 mark 3

(b) January;

May/June/July; September: 3
(R April)

(c) (i) June/July;
(ii) September/October/November; 2

(d) (i) Rainfall – use of measuring cylinder; reading scale;

suitable units; place gauge in open/away from obstructions; do not spill water;

Max/Min thermometer – read pins NOT fluid; read both sides;

at same time/of day; resetting;
MAX 3

(ii) Table drawn with headings for – seven days; rainfall;

max AND min temperature; (no units needed) 3

2 (a) (i) one square in each quarter and one anywhere;
(R if squares too big or small) 1

(ii) because results vary/to make results more reliable/eq/so mean can be found;
1

(b) 900; 1

(c) use a student under tree; estimate multiples of student;
or climb tree; use tape/rope;
or triangulation; explained; AVP;
one idea + explanation
(R cut down tree) 2

(d) 7200(kg); (A consequential error from part b) 1

(e) (i) (cooking) fuel; building/parts of house; fencing/kraals;

crafts/carving; furniture; coffins; (R boats/selling) 3

(ii) planting out seedlings/young trees in plot/well spaced/eq;

watering; weeding; fences; use of pesticide; manure/fertiliser;

tillage before planting; a two qualification marks; AVP;
MAX 4

(f) Guidelines such as – fences; more plots; replant every year/two years; guard/patrol plots; work out how much wood is needed/can be taken each year; water trees (in dry season; AVP;

Reasons such as – to prevent animal damage; provide enough wood for expanding village; keep steady supply; stop theft; not sustainable if too much taken; keep growth as fast as possible; AVP;
(use +/- to award some marginal points) MAX 6

3 (a) (i) 3070; 1

(ii) 100 200 300; 1

(b) vertical axis labeled weight/mass/kg; orientation;

scale has two sets of numbers/works; all plots correct; 4

(c) 1999; supply/demand answer; 2

(d) (i) light/sunshine/shade/eq; same climate/temp; water; pot size; volume of soil; NO pesticide; NO fertiliser; planted at same time; expt run for same time; AVP; 3

(ii) little or no striga left in A; more striga now in B; additional nitrogen from cowpeas helps growth 2

(iii) more plants/pots for A and B; start with same numbers of (striga) seeds in A and B; repeat whole experiment; AVP; 1

(e) (i)

FIELDS A/B Crops – maize/sorghum/peas Yields – good (moderate) NOT poor
FIELDS C/D Crops – Peas – yield good/moderate maize/sorghum – yield poor

Crops correct = peas in C or D or both
minimum of one maize and one sorghum ;
yields correct;

(R any poor yields in A/B or poor with cowpeas) 3

(ii) Read whole answer – rotation idea; two marks for details related to their plan in (i) and over time; 3

4 (a) dust/noise/visual pollution; human health/accidents; wildlife disturbed/habitat destroyed; (R pollution unqualified) 2

(b) new jobs from – mining; transport; mining supplies; chemical works; goods for export such as glass/rayon/soaps; sales/marketing; AVP; 2

(c) environmental answers e.g. – less fuel used to mine than to make from limestone; less air pollution if less transport; limestone extraction causes more damage than extracting sodium carbonate; AVP; 2

(d) any type of answer e.g. – transport uses more fuel; than fuel used to make it; risk of pollution during extensive transport; need to build more roads, qualified; mining damage may be great; high investment costs; AVP; 2

TOTAL 60

NB R = Reject
AVP = Alternative valid points