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CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0680 ENVIRONMENTAL MANAGEMENT

0680/41 Paper 4 (Alternative to Coursework), maximum raw mark 60

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1 **(a)** their land will be taken away / forced to migrate;
lose their livelihood / jobs;
will not get fair price for land;
do not have the skills to work in new industries / eq.;
farm workers attracted to new industries;
ref. pollution in context of impact on farming; [2]

(b) **(i)** 366; [1]

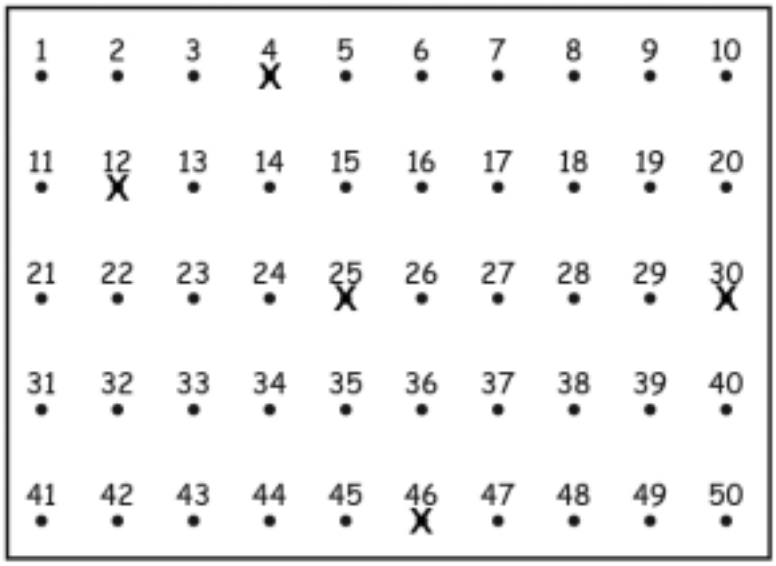
(ii) 300 × 1.75 = 525;
366 × 1.50 = 549; [2]
Allow one mark for correct calculation even if answer incorrect.

(iii) Bana produces more nuts per tree;
lowest Bana tree (68) still more than highest Tahaji (65) / eq.;
Tahaji give more kg of nuts / eq.;

	Tahaji (first farmer)	Bana (second farmer)
nuts	largest 1.75 OR	smallest 1.50
yield	not biggest 525 OR	biggest 549
no. of nuts	not most 300 (54–65) OR	most 366 (67–82)

[3]

(c) **(i)** Five correct trees marked;



[1]

(ii) (21, 39) 38, 45, 46; [2]
One mark for two correct, two marks for three correct.

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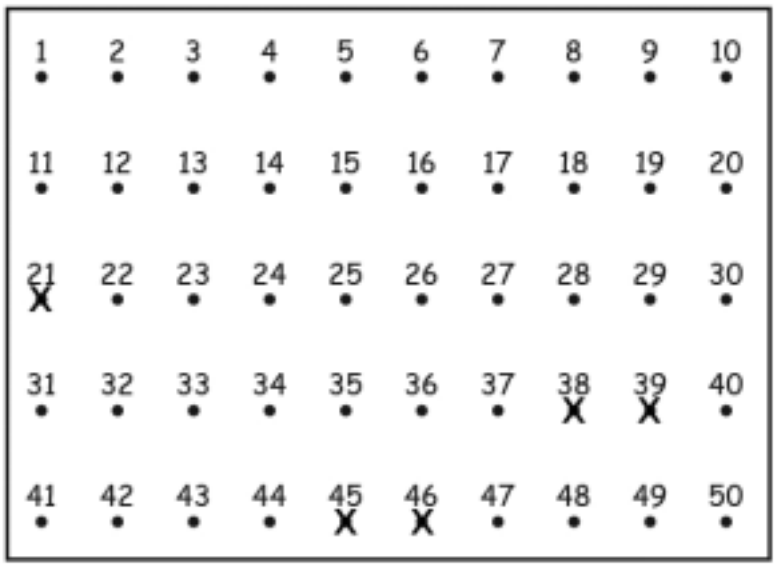
(iii) correct trees as stated in part **(ii)** marked.
Ignore 21 and 39. [1]



(iv) the trees were selected at random / not student's choice / unbiased selection; [1]

(v) repeat the survey (in more gardens);
for more than one year;
use more (than 5) trees;
ref. different sampling method with detail (e.g. every third tree) / ref. control variables with detail; [2]

(d) (i) 4.32 / 7.2 (× 100);
= 60(%); [2]

(ii) both need to make profit to stay in business so minimum price (thus cost);
investment in product / coconuts;
transport cost (stallholders only);
labour costs;
storage costs;
rent / licence (both) for market stall / warehouse;
power costs;
ref. tax once;
Max three for points about wholesalers or market stall holders. [4]

(e) (i) garden divided into a minimum of three sections;
labels / instructions to show sequence of harvesting;
workable plan (supply every week) / further useful detail / idea of six trees per week; [3]

(ii) linear y-axis sale;
axes labelled;
plots; [4]

(iii) price increases to a peak (July / 610) / eq. and then steadily drops / eq.; [1]

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(iv) July, January; [1]

(v) shortage of supply / increases the price / in June;
overproduction / lack of demand decreases price / in January;
ref. to more or less demand for export; [2]

(f) (i) How many people do you support?;
How many trees do you have? / eq.;
or a yes / no question, e.g. Do you intend to carry on coconut farming?;
Are prices fair?;
Have you other jobs?;
Do you eat coconuts yourself?;
What variety do you grow?;
Do you use fertilisers?;
How much do you earn from selling coconuts?;
Credit other suitable questions. [2]

(ii) select a reasonable / large number of farmers i.e. more than 10 (no more than 50 or 50% of a quoted number or all farmers coming to wholesaler sampled);
system for deciding who to ask (systematic, e.g. age-related / gender-related / where they farm, zone / type of coconut); [2]

(iii) idea that:
most have small gardens / less than 0.5 ha;
as their main source of income;
with less than 40 nuts per tree;
the income is not enough to support their family; [4]

(g) (i) table drawn;
table able to record data for three plots (with headings);
table able to record data for five crops (with headings); [3]

(ii) legumes fix nitrogen;
because bacteria in their roots;
so soil more fertile / has nutrients added to it by them;
coconuts / all plants will grow more; [2]

(iii) plot 2 has higher planting density;
light can reach all the plants;
so more photosynthesis;
leading to better / eq. growth; [2]

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2 **(a)** yes
ref. to carbon neutral;
the carbon dioxide released will be absorbed by photosynthesis / growing the next crop of coconuts;
cannot release more carbon dioxide than was absorbed;
renewable resource AVP;

no
still causes pollution;
ref. to non-carbon dioxide based pollutants / smoke;
might lead to lack of food; [3]

(b) (use some profit to) invest in increasing intercropping;
especially nitrogen fixers / legumes;
as this will increase yields;
of all plants;

remove some old palms;
use / sell them for fuel;
replace with (small number of) hybrids;
but can only afford a small number of hybrids;
so need to do it step by step;

advantage is they give higher yield / more nuts;
less labour as easier to pick / need less pesticides / pest resistance;

ref. to other techniques such as adding organic fertiliser; [4]

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(c)

in favour	against
very good use of coal reserves within the country / eq.;	the new jobs encourage people to give up farming / ref. to pull factor / visual pollution;
less pollution from vehicles with new diesel;	coal waste / ash needs to be disposed of;
so lower contribution to climate change / greenhouse effect;	does not use up much land;
creates jobs;	what happens when the coal runs out;
so do not need to import as much coal / diesel;	not enough local people with the skills for the new plant;
ref. to GDP / balance of payments;	destroys farmland;
ref. to improved infrastructure;	rejected coal will still cause pollution;
does not use up much land;	possible risk of water pollution;
highly skilled / high salary jobs / able to support families;	80 000 barrels a day unlikely to satisfy (future) demand / only a small proportion of fuel consumption;
some carbon dioxide captured / eq.;	destroys traditional way of life;
ref. to advantages of water recycling;	
AVP;	AVP;

[6]

AVP = Alternative Valid Point.

[Total: 60]

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