NATURAL ECONOMY (0670)

PAPER 2

Mark scheme for 0670/02 June 2002

1 (a) All 6 correct (in effect four plots and two left as zero) = 3 marks

    4 or 5 correct = 2 marks

    At least one month with a plotted value that is correct = 1 mark

        [3 marks]

(b)(i) - temperature never falls below 24°C,

    - range of temperature from 33° to 24°C,

    - most temperatures in the high 20s or low 30s, which is hot.

    One mark for a general comment with or without reference to values,

    2nd. mark for a more specific comment based upon quoting or using temperature values from the graph.

        [2 marks]

(b)(ii) - some reference to the months or season of the year when it is wet,

    such as rain only in the months March to October,

    or most rainfall concentrated in months between May/June and September/October.

    - some reference to months or season of the year when it is dry,

    such as no rain at all from November to February.

    1 mark for wet season and 1 mark for dry season references.

        [2 marks]

(c)(i) Has two peaks, or temperatures fall in mid-summer, or however expressed to convey the idea that the temperature doesn't climb to one smooth peak as is typical of many other types of climate.

        [1 mark]

(ii) More precipitation / rainfall (therefore less sunshine and warmth).

    Correctly related to rainfall = 1 mark   [1 mark]

(d) All within the tropics,

    goes across the Equator in Africa,

    largest expanse in Africa,

    otherwise in separate areas on both sides / two areas in South America,

    more detail about named places.

    Any two points along these lines = 2 @ 1 mark   [2 marks]

(e)(i) - grasses sprout / grow quickly,

    - leaves return on the trees,

    - grasses are green instead of brown.

    Any two. 2 @ 1 mark.

                [2 marks]

(ii) Deep roots:

    - draw up underground water supplies,

     especially during the dry season when surface water is unavailable.

    Large trunks and thick branches:

    - places to store large amounts of water,

     take water in during wet season for use in the dry season.

    Small leaves:

    - leaves lose water by transpiration,

     the smaller the leaves the less that is lost in the dry season.

    One specific mark reserved for each adaptation = 3 @ 1 marks

    Fourth mark for extra elaboration for one adaptation or comment well related to the need to cope with the dry season.

                [4 marks]

(iii) Total animal list -

(herbivores) - giraffe, zebra and antelope,

(carnivores) - lion, hyena, cheetah and vulture.

Reasonably complete (without expecting them to be arranged in this way)

= 1 mark   [1 mark]

(iv) Food chain;

- some attempt to show one or more of the grass eaters = 1 mark.

- some attempt to show one or more of the meat eaters eating the grass

eaters = 1 mark.

- arrows added in the correct direction = 1 mark.

[3 marks]

(f)(i) Correct plots for 1960 and 2000 with line connecting them = 2 marks

At least one plot correct = 1 mark

[2 marks]

(ii) Ways that are stated in the syllabus;

family planning, improved education, national policies.

There are others e.g. higher levels of economic development.

Statement of a way = 1 mark

Explanation of how / where it operates = 1 mark

Expect 2 @ 2 marks, but allow up to three marks for one way, particularly

if what the candidate considers to be two ways are insufficiently different e.g. family

planning and use of contraceptives.

[4 marks]

(iii) In China the increase is only double, compared with an increase of more than three times in Tanzania - or words to this effect.

[1 mark]

(iv) Possible reasons;

political - how strongly the government supports it / whether there is a national policy (as in China),

economic - how rich the country is and whether family planning clinics can be afforded,

social - tradition, religion, education of women, whether most live in rural or urban areas,

aid - degree to which outside help has been given / accepted.

These or others - some understanding = 1 mark

- fuller understanding = 2 marks   [2 marks]

(g)(i) In the south / along the (southern) border / between Nairobi and Mombasa / in the centre.

[1 mark]

(ii) Gain income from tourists.   [1 mark]

(iii) Means of protecting the wildlife from being killed by local people,

some elaboration such as bush meat is widely eaten or elephants hunted for their ivory,

likely to be policed / patrolled to stop further animal losses,

prevents forested areas from being cleared / used commercially,

helps to keep varied habitats,

preserves biodiversity.

Credit both basic and elaborated points.   [3 marks]

(iv) Elephants have increased in numbers/ thousands of visitors each year.

[1 mark]

(v) Answer which relies heavily on the information given = 1 or 2 marks, depending upon degree of selectivity.

Answer which uses the information and adds comments, thereby making it an effective answer to the question set = 3 or 4 marks.

[4 marks]

Total 40 marks

2. (a)(i) Wind vane

(ii) Anemometer

(iii) Rain gauge

3 @ 1 mark   [3 marks]

(b)(i) open area / open space,

grassy area / in the middle of a field,

hedge behind it.

(ii) so that there is no shade / nothing to block the elements,

references to particular instruments which need to be in an open area for accurate measurements,

hedge helps to keep animals out.

3 @ 1, with a minimum of one mark for each part.   [3 marks]

(c)(i) Up to three marks for labelling the features of a chosen weather instrument.

Note that any type of thermometer can be used (or even the Stevenson's screen itself)

(ii) Up to two marks for explaining how an accurate reading would be taken.

If maximum marks are not reached, allow 1 mark for the accuracy / quality of the drawing, being more sympathetic to one for an instrument named but not fully drawn on the weather station sketch.

[4 marks]

(d)(i) - top of normal rain gauge is only 30 cm above the ground,

ground surface may flood to more than that depth,

- rain gauge / bottle inside it only holds a limited amount of water,

may become full before it is the scheduled time to take the reading.

- strong winds blowing rain sideways

Statement of one basic point of the type suggested above.

[1 mark]

(ii) In order of bullet points;

- need for shelter

- need for rescue by boat etc.

- health care / emergency medical help / provision of mosquito nets

- food aid

3 @ 1 mark   [3 marks]

(iii) Most appropriate answer is rescue of those trapped by the rising waters. If this is chosen, it can be awarded 1 mark.

Otherwise the two marks can be gained from the explanation (i.e. justification) of the choice of one of the other types of aid. Whether it is a one or two mark answer depends upon the strength and validity of the chosen type.

[2 marks]

(iv) Some that were the same could be identified;

shelter + food aid + dealing with health problems,

which are still short term / disaster relief issues.

Maximum 3 marks for an answer only for these (if well explained).

Suggestions that some longer term, development aid is now needed;

new homes need to be built to replace temporary shelters,

rebuilding the infrastructure of roads, schools etc. (however expressed),

replace cattle and give crop seeds to farmers etc.

Maximum of 3 marks for this kind of answer only.

[4 marks]

(e)(i) 22 / 23 billion dollars   [1 mark]

(ii) 1992   [1 mark]

(iii) Natural disasters only happen from time to time (and not every year),

even if they happen they may not hit populated areas,

some are stronger than others (e.g. earthquake shocks),

some areas may be prepared for them so that damage is reduced,

some happen in developing countries where people won't have insurance.

Two points made of the type given above, or one point well elaborated upon or exemplified.

[2 marks]

(f)(i) Six [1 mark]

    (ii) Two [1 mark]

    (iii) Most likely choice is earthquake, with references to such as strengthening buildings to make them earthquake proof, elaboration upon the ways of doing this, keeping buildings low, undertaking emergency earthquake drills, training teams to cope with emergency procedures.

    May use the cyclone, with reference to cyclone shelters as in Bangladesh or hurricane watch in the USA monitoring cyclone movements, boarding up and clearing people out of towns in the likely path of the storm.

    Could refer to methods of flood protection such as coastal barriers, raised banks etc.

    One measure identified = 1 mark

    Elaboration / development = 2nd, 3rd. or 4th. mark

[4 marks]

(g)(i) - easy / cheap supply of drinking water,

    - water was clean because it was free from the bacteria which contaminate surface water supplies,

    - children are no longer dieing from diseases spread by drinking polluted water,

    - people have access to water in their homes,

    - given to them as wedding presents,

    - the wells were easy to sink in the soft soils.

    Any 2 - 2 @ 1 mark. [2 marks]

(ii) About 90% would be the simplest answer.

Allow any value between 80 and 95%.

[1 mark]

(iii) For many years arsenic in ground water supplies was believed to be safe,

arsenic is tasteless, colourless and without smell,

some comment that people were (therefore) unaware of its presence,

the symptoms from arsenic poisoning in people take a long time to show

up,

safe and poisoned wells can be close together,

comment on this so that not everyone in an area will be affected,

it was such a successful way of obtaining water and very popular with the

people,

water never tested.

Any three, crediting elaborative comment as well as well as separate points.

[3 marks]

(iv) Possible arguments;

- have never had any health problems and they remember the time when their children were always ill and died from drinking unclean water;

- they had paid to have them installed or had them bought as wedding presents and they can't afford just to abandon them;

- it is an easy way of obtaining water and other alternatives are more difficult to use, not yet readily available, and more costly to run (e.g. a pump is needed);

- they may not trust or do not believe or do not want to believe what the government is saying.

Reward any valid argument suggested.

Reward elaboration / exemplification of one argument with up to three marks, but to gain all four marks at least two different arguments are needed.

[4 marks]

Total 40 marks