

MARK SCHEME for the October/November 2007 question paper

0680 ENVIRONMENTAL MANAGEMENT

0680/04

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

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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.

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Cameroon

- 1 (a) (i)** axes correct; axes labelled (yield) litres and at least letters to indicate each month, (look for level in June July 1 mark, allow one other error for second mark);
- (ii)** March; [1]
- (iii)** June and July; [1]
- (iv)** $615/9 = 68.3$; [2]
- (b) (i)** (use ladle/bucket) with volume marks/eq A weight of milk; [1]
- (ii)** suitable table drawn; headings; units (days and litres); [3]
- (c) (i)** shading below 1200 m (allow all across graph or just on land) [1]
- (ii)** $30 - (0.6 \times 7) = 25.8(^{\circ}\text{C})$; ecf +1 mark [2]
- (d) (i)** $(50 \times 20/5 = 1000/5 =) 200$; [1]
- (ii)** to prevent contamination/eq/damage to well head/animals fall in; [1]
- (iii)** Advantages: quicker; more cattle watered; less hard work; further detail; AVP;
 Disadvantages: need a bullock; second person; machinery maintenance; cost of machinery; need skills to work it; AVP;
 (max 3 if only advantages or disadvantages stated)
 R more time as a disadvantage [max 4]
- 2 (a) (i)** species/number of trees the same; soil factors;; weather the same; fungus equally spread; AVP e.g. easier to run expt; [2]
- (ii)** so plots equally/fairly sampled/not biased/eq; [1]
- (iii)** co ordinates and random numbers; throw markers/eq; [1]
- (iv)** nutrients recycled; named examples/NPK; digestive enzymes from worms; mixing soil; add humus; improved aeration; improved drainage; AVP; R text i.e. dragging leaves down [2]
- (v)** plot **A** may have more worms/ora; or worms more active/ora; AVP; [2]
- (vi)** 1–6 farms or repeat on same farm,
 Reason – check for similar effects/results of fungicide (on other farms) R accurate;
- Expt areas
 Reason – to check results (A accuracy);
- 6–12 weeks
 Reason – to check that decomposition continues/eq; [3]

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- (b) (i) 2, 9;
- (ii) 1, 4, 11;
- (c) A; controlled expt/described; replication ideas; AVP; [3]
- (d) (i) similar numbers of pods infected; results could be chance/eq;
- (ii) Deliberately infect trees – apply two treatments; repeat on another farm; different planting density; check for fungus on trunk/other parts; effects on other species; AVP; e.g. older/younger trees [4]

3 (a) (i) answer related to bullet points as shown below

BT1 once or twice a year – so already rare and will become extinct/disappear;

BT2 smaller fish – not reaching maturity/breeding condition; more needed to be caught for food; so more work to catch them;

BT3 more boats – more pressure on fish stocks; too much fishing effort;

BT4 further out – more fishing grounds/species under threat; more dangerous work;

BT5 same answers as for BT2;;

Use of figures to support; risk of malnutrition/starvation; AVP;; [max 5]

- (ii) protein/vitamin D/energy; [1]
- (iii) two appropriate named diseases or waterborne/bred/related diseases;; ref to mosquitoes; ref to specific example of pollution; AVP; R oil pollution [2]
- (b) (i) count fish/weigh fish; size; separate into species; adults/juveniles; how many boats fishing; record (in table); [2]
- (ii) quota; control number of boats; fishing days; mesh size; license; time of year; AVP; [2]
- (iii) do not know how to look after goats; do not want to give up way of life; no money for investment; food supply uncertain; attracts predators; specific environmental problem; AVP; [2]
- (c) reduced demand for fish; chickens/goats give alternative food supply; AVP; [2]
- (d) avoid extinction; keep genes for use later/eq; may be able to reintroduce later; AVP; [3]