BIOLOGY HG P 1 **NOVEMBER 2006**

SECTION A

This year, the section focused on two levels of Bloom's taxonomy, mainly level A and B, with very little percentage of level C. This contributed to a tremendous good performance of this section. It also gave learners the advantage of completing the whole paper in time

QUESTION 1

1.1 Well answered. However learners must be taught to give answers by using symbols as given in the Question paper and not to change the case.

1.2 1.2.2 : Some learners gave carboxyhaemoblobin as an answer and only few centeres knew monoculture for 1.2.7.

1.4 Many learners did not know the food tests. Evident that no practical work is done at some centres. Suprisingly many learners could identify the colour changes and not the reagents. In many cases filter paper was cofused as a reagent.

1.5.3 Many candidates discussed the influence of temperature on enzyme action. Some even quoted temperature readings and drymass output.

1.6.1 Common bile and pancreatic duct / hepato-pancreatic duct was not known to more than 60% centeres.

1.6.2 Enzymes were confused with hormones. Some candidates explained the functions of hormones insulin and glucagon and not pancreatic functions.

QUESTION 2

2.1 - In general this Question was fairly well answered except for Question 2.1.2 and 2.1.3.
- It will be very important to place emphasis on the role of co-enzymes and co-factors when teaching.

2.2

2.2.1 Many candidates did not read the Question carefully. They only gave the letter and not the name. However many learners could not identify the labels.

2.2.2 Some centers did extremely well in this Questions and in many it was poorly answered. Centers that did not do well answered the Question by referring to the movement of CO_2 from a high to a lower concentration and did not mention the fact that it is used during the dark phase in the stroma, mainly focused on diffusion). Some said CO_2 concentration is low on the outside because it diffused into the organelle to be used. Only few learners received marks for dark phase, chloroplast and stroma.

2.2.3 Very well answered compared to the previous years. An evident that they dealt with photosynthesis very well. Also the skill of drawing a table is well mastered. Few centers wrote about the dissociation of H_2O; i.e. $H_20 \rightarrow H^+ + OH^-$

2.3 Very well answered. However correct skills of tabulation need to be properly taught. Some centres wrote the definition of the two processes with their phases. Some were unable to identify the gases used and released in these processes.

QUESTION 3

3.1 Very poorly done. Concepts of chromatography clearly above their level.

3.1.1 Few correct answers, (±5%). (A & B) was poorly answered. Most learners got it wrong. The Question was not well understood.

3.1.2 Some answered correctly. A few centres could not give the correct answers.

3.1.3 Fairly performred.

3.2

3.2.1 Generally reasonably well done, though very time consuming to mark accurately, i.e. to actually award 3 marks for plotting. Learners lost marks mainly in plotting vertically above the X-axis, although it was not so accurately marked. In a few centers, the axes were transposed / switched (i.e. learners not sure about dependent and independent variables). However ths skill of drawing a graph has also dramatically improved.

POINTS TO TEACHERS:

- Stress correct axes
- Difference between the type of graphs, e.g. line and bar graph
- Constant scale
- 0 (Zero) only where axes join
- How to indicate a break in the scale if figures are far away from 0 (zero)
- Plotted points should be clear and easy to read
- Heading of the graph should include both dependent and independent variables
- Labels of axes should include units given

3.2.5 Many learners could not distinguish between organic and inorganic.

3.2.7 At times Question was misread – Learners gave a range and not a number.

QUESTION 4

4.1

4.1.1 - Learners confused between inter-and intraspecific competition.
- Some learners wrote definitions instead of giving examples
- Many did not know impala are buck

4.1.2 Question was badly answered in a sense that the arrow direction was wrong. In some cases learners used terminology, 'eaten by' , but arrows pointing in the wrong direction. In some centres, time was spent in drawing a variety of design animals with arrow direction still wrong. This question should be taught in conjuction with 'Energy flow in an ecosystem'.

4.1.3 Learners had a language issue with; decline, degenerate and deteriorate.

4.1.4 Learners referred to the lowering of the carrying capacity. A lot of them spoke about flooding and rain but not winter.

4.1.5 Learners wrote carrying capacity is the number that the population support / maximum number of population with no mention of size.

4.2

4.2.1 Many learners did not know what the word random meant. Some linked it to osmosis and explained the process.

4.2.2 In some schools, calculations were well done. A good indication of indepth syllubus covarage and skills taught.

4.2.3 Answered well with a few exceptions.

4.3

4.3.1 A lot of learners did not know the complete definition for population dynamics. Many gave the definition of a population.

4.3.2 Well answered

4.3.3 Many learners gave relevant answers

QUESTION 5

5.1.1 Reasonably well answered.

5.1.2 Most learners received marks here.

The feeling of the markers was that the question was too open-ended. Answers varied from activities in cells to tissue functioning to that of organs and systems in the body.

5.1.3 Okay. Some learner's interpreted "depth" to imply rate of breathing – thus, writing "faster" as the answer.

5.1.4 Average. Many learners could not make the link between the two graphs to do the calculations. Calculations, generally, done poorly. Some centers still had no units.

5.1.5 (a) Many learners wrote aerobic respiration or Krebs Cycle as the answer. Some centers had oxidative "phosphor-regulation "instead of "phosphorylation".
Poorly answered. Learners at many centers could not make the link between lactic acid build up and increase in breathing rate.

5.1.6 (a) Poorly answered. As in Question 5.1.4, learners struggled to link readings from the two graphs as part of calculation.
(b) Okay. However, many learners wrote that particles were trapped in "moistness" not mentioning mucus layer or cilia or ciliated epithelium. In some centers, learners mentioned "villi" trapping particles.

5.2 Although learners at some centers answered this question well, many learners misinterpreted the question and discussed the "control of breathing". Learners at many centers discussed "gaseous exchange at the lung surface".

Misconceptions were also picked up:
(a) Learners wrote about "area" of lungs/ thoracic cavity instead of "volume"
(b) learners at some centers described movement of muscles as "up/out/down" instead of the effect of their "contraction or relaxing".
(c) learners were not specific about type of intercostal muscle bringing about the action
(c) verbs such as "contract" and "constrict" confused
(d) some centers used "concave" instead of "convex" to describe shape of diaphragm during exhalation
(e) many learners lacked insight to relationship between volume and pressure

(f) some centers described the movement of the gases/air as the cause of action in the lungs and thoracic cavity.

Quite a few centers had the essay question written in bullet form. Some even wrote the essay in the form of a table. Recommendation is that essay writing be given more practice to perfect technique. Synthesis marks are not awarded if that is the case.