Aga Khan University Examination Board
Notes from E-Marking Centre on SSC II Biology Examination May 2012

Introduction

This document has been produced for the teachers and candidates of the SSC II course in Biology. It contains comments on candidate responses to the 2012 Secondary School Certificate Examination, indicating quality of the responses and highlighting their relative strengths and weaknesses.This document should be read along with the AKU-EB Biology syllabus based on the National Curriculum (2006).

General Comments

Teachers and candidates should be aware that examiners may ask questions that address the syllabus outcomes in a manner that requires candidates to respond by integrating knowledge, understanding and skills they have developed through studying the course.
Candidates need to be aware that the mark allocated to the question and the answer space, are a guide to the length of the required response. A longer response will not itself lead to higher marks. Writing far beyond the indicated space may reduce the time available for answering other questions.
Candidates need to be familiar with the command words in the student learning outcomes which contains some terms commonly used in examination questions.However, candidates should also be aware that not all questions will start with or contain one of the key words from the glossary. Questions such as 'how', 'why' or 'to what extent' may be asked.

Question 1a

Better responses wrote two events/ features of photosynthesis which make it different from respiration.

Average responses provided only one event/feature.

Weaker responses wrote events/features which are common in both processes such as, photosynthesis takes place in living organisms/ diffusion of gases takes place.

Question 1b

Better responses not only identified structure M correctly as sweat gland but also wrote that sweat evaporates on the skin using body heat and thus keeps it cool.

Average responses identified the structure M correctly but failed to describe the phenomenon taking place.

Weaker responses wrongly identified structure M (identified the structure as blood capillary) and ended up in subsequent wrong description. Some of the responses identified correctly but were unable to describe its function in keeping body temperature constant. These responses did not

mention about evaporation or loss of body heat rather gave generalized statements e.g. when it is hot outside, body temperature decreases and vice versa.

Question 2a

Better responses wrote distinctive features of nervous control that make it different from hormonal control such as the response is quick and targeted.

Average responses wrote only one distinguishing feature.

Weaker responses wrote features which are common among both, such as it is controlled by the nervous system/ the malfunctioning cause abnormalities or disorders.

Question 2b

Better responses gave relevant symptoms of epilepsy i.e. repeated seizures/ convulsions/ shaking/loss of alertness along with specific treatment i.e. surgery/ medication or anticonvulsants.

Average responses either wrote relevant symptoms or treatment.

Weaker responses gave generalized symptoms like fever, weakness, loss of memory. Candidates are advised to read the question carefully to come up with accurate answers in limited space.

Question 3a

Better responses correctly identified structure F as cartilage and presented a description of arthritis using technical terms like the bones rub together, causing pain, swelling (inflammation) and stiffness.

Average responses identified the structure correctly but were unable to correlate it with the disorder involved. This resulted in loss of marks.

Weaker responses either identified structure F as hinge or ball and socket joint or they described osteoporosis instead of arthritis.

Question 3b

Better responses described the role of water in bursting seed coat and helping roots to emerge out and to activate enzymes to digest the stored food.

Average responses wrote about bursting of seed coat only without consecutive event.

Weaker responses mentioned the role of water as a universal solvent.

Question 4a

Better responses stated AB as an example of co-dominance and justified their choice by supporting description such as neither of the two alleles (A or B), for a particular trait, is dominant over the other/ both alleles A and B exert their effects so that the hybrid has a phenotype that is intermediate between that found in the parents.

Average responses identified AB correctly but were unable to justify their choice.

Weaker responses identified ABO as an example of co-dominance though it was not provided in the question. Subsequently, they either describe ABO blood group system or stated definition of co-dominance.

Question 4b

Better responses wrote about the significance of variation linking it with variety and survival of the fittest.

Weaker responses rephrased the question or wrote about types of variation i.e. continuous and discontinuous variation.

Question 5

Better responses constructed the food web focusing on the selection of common producer and then leading the chain using primary, secondary and tertiary consumers.

Average responses constructed food web using two producers. It seemed that these responses drew two or three food chains and then connected them compellingly to make a food web.

Weaker responses drew either three to five separate chains and failed to present the idea of food web or took animals on their own besides given in the question. This might show their inability to use stimulus or practice of rote memorization.

Question 6a

Better responses identified the group of people (people with severe protein deficiency/ people on diet) who should take single cell protein in their diet and provided reason i.e. they contain high protein content, low fats, carbohydrates, nucleic acids, vitamins, and minerals.

Weaker responses gave generalized answers like everyone should include these proteins in his diet as it is required for growth and repair.

Question 6b

Better responses wrote two relevant conditions under which sedatives are prescribed such as when a person is suffering with severe pain/ experiencing high level of anxiety/ suffering with insomnia/ experiencing fits or convulsions.

Average responses wrote only one such condition.

Weaker responses either included effects of sedatives on a person's health or wrote generalized answers such as when a person is ill.

Question 7a

Better responses wrote about asthma as inflammation of airways/narrowing of air ways and sensitivity to irritants. Such responses added three distinctive causes of asthma which included exposure to tobacco or wood smoke/ breathing in polluted air/ inhaling other respiratory irritants/ exposure to airway irritants.

Average responses wrote about causes only. As asthma is a common respiratory disease, candidates seemed to be aware of its causes but they showed little knowledge of what happens in this disease.

Weaker responses wrote pollution or cigarette smoke as some of the causes of asthma.

Question 7b

Better responses focused on the working of a dialysis machine (removal of metabolic waste products from the blood through diffusion and osmosis) with reference to the composition of dialyzing fluid.

Average responses wrote the overall function of dialysis machine without adding particular details like absence of urea/ presence of water and salts.

Weaker responses described the types of dialysis i.e. haemodialysis and peritoneal dialysis.

Question 8a

Better responses described hinge joints, ball and socket joints, gliding joints and pivot joints as movable joints with examples.

Average responses gave examples of movable joints without providing any description of their structure and extent of movement.

Weaker responses wrote about synovial joints or immovable joints.

Question 8b

Better responses identified correctly the organisms for both processes, showed division of body in two/ multiple halves and the development of body into complete organism in fragmentation and multiple fission respectively.

Average responses described only one process.

Weaker responses identified the organisms only.

Question 9a

Better responses wrote about the objectives of genetic engineering i.e. to produce desired characteristics or to eliminate undesirable ones. These responses also added a suitable example to support their answer.

Average responses mostly wrote about the example of insulin production without stating the objectives.

Weaker responses wrote about the definition of genetic engineering.

Question 9b

Better responses wrote about the structural resemblance of vaccine to micro-organism, composition of vaccine, function of vaccine, administration of vaccine and the memory aspect of vaccine.

Average responses wrote mainly about the function of vaccine in general.

Weaker responses either defined vaccine or described the types of immunity.