BIOLOGIE HG VRAESTEL 2

Die kandidate het oor die algemeen beter gevaar as in 2002.

Algemeen:

Onderwysers moet asseblief die voorskrifte rakende die beantwoording van die vraestel bestudeer – hierdie dokument staan bekend as: Potensiële probleme m.b.t. nasien van HG en SG Biologie 2003. Hierdie voorskrifte is landwyd STRENG toegepas. ALLE vrae moet beantwoord word – daar is GEEN keusevrae nie. Die voorskrifte vra dan ook vir netjiese, logiese en leesbare handskrif. Laat spasies tussen afsonderlike antwoorde en begin nuwe vrae op 'n skoon bladsy. Begin nuwe feite in afsonderlike lyne. Nommer die vrae duidelik en korrek – vanaf 2004 sal kandidate gepenaliseer word vir verkeerde nommering. MOET NOOIT KORRIGEERLAK GEBRUIK NIE. Beantwoord die vrae slegs in BLOU of SWART ink. Indien daar vir drie feite gevra word en die kandidate het meer aangedui, dan is SLEGS DIE EERSTE DRIE aanvaar. Baie kandidate het as gevolg hiervan punte verloor. Hierdie voorskrif is alreeds verlede jaar aan skole voorsien. Dit is egter in 2003 deurgaans toegepas.

Afdeling A (Vraag 1): Oor die algemeen goed beantwoord deur die kandidate. Kandidate se spelvermoë laat egter veel te wense oor. Dit skyn asof baie sentra nie besef dat kapillariteit deel uitmaak van die sillabus nie. Baie kandidate het nie hierdie antwoord geken nie. 'n Algemene fout is die verwarring tussen HITTE-UITRUILINGSMEGANISME en termo-regulering.
Vraag 1.3 wat handel oor hoër orde denke is swak beantwoord wat daarop dui dat meer aandag geskenk moet word aan die ontwikkeling van hierdie vaardigheid.
Die vrae wat handel oor die eksperimente het duidelik getoon dat praktiese werk by baie sentra afgeskeep word. Baie kandidate toon weinig begrip vir die wetenskaplike proses en dit skyn asof die voorgeskrewe praktika by baie sentra d.m.v. teoretiese verduideliking oorgedra word (indien daar enigsins hieraan aandag geskenk word).

Vraag 2: Hierdie vraag is deurgaans swak beantwoord. Dit skyn asof die werking van die nier elke jaar probleme vir kandidate verskaf. 'n Voorstel is dat die Biologie Kurrikulumadviseurs riglyne saamstel wat voorstelle moet bevat vir onderwysers om hierdie afdeling van die sillabus aan te pak. Verskeie handboeke verskil oor die verskeidenheid van nierfunksies en sodanige handleiding vanaf die adviesdiens sal die kandidate in die toekoms beter toerus. Die verskille tussen konsepte soos arterie, vene, arteriool en venule moet meer tuisgebring word by ons kandidate. Die beantwoording van die byskrifte van die nierbuisies is goed gedoen. Die funksionering van ADH om te verseker dat daar genoeg water in die liggaam behoue bly (2.1.5) is egter nie te goed beantwoord nie, aangesien kandidate nie die vloeirigting van water bespreek nie. Dit het ook gegeld vir die ander vrae waar die kandidate weinig verwys het na die RIGTING waarin die verskeie stowwe beweeg. Kandidate is geneig om slegs 'n direkte antwoord te verskaf en bly in gebreke om 'n wetenskaplike verduideliking van gebeure te verskaf waar dit vereis word. Van HG kandidate word verwag om meer korrekte wetenskaplike verduidelikings te verskaf. Kandidate toon verwarring tussen die konsepte soos absorpsie en herabsorpsie; ekskresie en sekresie, ens. Die oorgrote meerderheid van kandidate toon 'n swak begrip van die soutbeweging en die rol van die nier in die handhawing van die Ph- balans in die bloed.

Vraag 3: Dit is bemoedigend dat die kandidate beter gevaar het in die trek van die grafiek as in vorige jare. Daar is egter nog sentra waar die oorgrote meerderheid van kandidate die asse verwar en die onafhanklike veranderlike op die Y-as i.p.v. die X-as plaas. Daardie kandidate het punte verloor. Kandidate het ook punte verloor omdat die eenhede nie aangedui is nie, of omdat die skaal

van die asse verkeerd was. Die interpretasie van die grafiek is egter oorwegend swak beantwoord. Kandidate moes verduidelik waarom daar 'n verskil in die grafieke is, maar baie het slegs beskryf wat hulle waarneem op die grafiek. Weer eens 'n geval dat die vaardigheid van logiese, sistematiese denke en die sortering van inligting meer ontwikkel moet word by ons skole. Alhoewel die vraag redelik deur die kandidate beantwoord is, is daar baie ruimte vir verbetering aangaande die interpretering van inligting. Die gebruik van die terme dorsale (of rug-) wand en ventrale (of buik-) wand by die wande van die huidmondjie is VERKEERDE begrippe en is nie aanvaar nie. Onderwysers moet nie hierdie terme (alhoewel dit in sommige handboeke verskyn) ooit gebruik nie. Weereens is daar verwarring bespeur by die kandidate rakende begrippe soos: guttasie vs transpirasie; asook die faktore wat die verskillende prosesse beïnvloed.

Vraag 4: Dit is teleurstellend dat daar sentra is waar die kandidate nog steeds oogakkommodasie verwar met pupilmeganisme. Daar is egter 'n verbetering te bespeur teenoor die tendens die afgelope paar jare. Die interne bou van die oog en die funksionering van die verskillende dele moet meer aandag geniet by ons skole. Voorbeelde van verwarring: kandidate noem dat die siliaarliggaam saamtrek (slegs spiere trek saam en dit moet dus die siliaarspiere wees); hulle noem dat die suspensoriese ligamente verslap of saamtrek(slegs spiere kan dit doen en daarom moet gemeld word dat die spanning op die ligamente afneem of toeneem); baie kandidate verwys na die feit dat die lens konkaaf raak – dit dui op 'n wanbegrip van die eienskappe van lense in die algemeen en die ooglens in die besonder. Die interpretasie van akkommodasie soos vergestalt in die vraag oor die dra van konvekse lense is swak beantwoord – weer eens die feit dat baie HG kandidate se hoër orde kognitiewe vermoë ontwikkel moet word. Die begrip van die funksionering van die oor was nie te goed beantwoord nie. Kandidate het in gebreke gebly om die werking van die gevraagde dele volledig te beskryf en kon ook nie hul kennis oor die groottes van die timpanum en die ovaalvenster ekstrapoleer om die groottefaktor as rede aan te voer vir die versterking van die klank nie. Die vraag oor die eksperimentele ontwerp (4.3.1) is swak beantwoord. Twee redes kan hiervoor gegee word, nl. dat kandidate slegs die antwoord gee sonder om die verduidelikings te gee soos gevra; tweedens is dit duidelik dat baie van die kandidate geen benul het van die wetenskaplike (eksperimentele) ontwerp nie. Dit sal meer ontwikkel moet word, veral t.o.v. die uitvoering van praktika by ons skole.

Vraag 5: Kandidate het die dataresponsgedeelte van die vraag (5.1) redelik goed beantwoord, maar die opsteltipevraag (5.2) is swakker beantwoord of in baie gevalle nie eers aangepak deur die kandidate nie. Dit mag wees dat die kandidate nie genoegsame oefening by die skole kry om opsteltipevrae te beantwoord nie. Algemene foute wat die kandidate in 5.1. gemaak het, was dat die eenhede in baie gevalle nie aangetoon is nie. Dit is gepenaliseer. Daar moet meer ontwikkeling plaasvind rakende die teken en interpretering van grafieke en kandidate moet daarop attent gemaak word dat alle bewerkings en eenhede aangetoon MOET word.

Daar skyn ook verwarring te wees by baie sentra rakende die verskeidenheid van hormone, hul afskeidingskliere, hul teikenorgane en hul funksionering.

Daar was interpretasieprobleme met die vraagstelling van 5.2 en dit sal met die eksamenpaneel opgeneem word. Tog was daar bepaalde probleme wat by die skole aangespreek moet word. Verwyding van die bloedvate dui daarop dat dit 'n baie warm dag is, tog het baie kandidate die prosesse tydens koue omstandighede beskryf. Kandidate het ook die hele termoreguleringsproses i.p.v. slegs die warmte-reguleringsproses beskryf.

BIOLOGY HG PAPER 2

Candidates generally fared better in this paper than the group of 2002.

General:
Teachers must please study the prescriptions regarding the answering of question papers. This document is entitled "Potential problems related to marking HG & SG Biology 2003". These prescriptions were STRICTLY adhered to throughout the country:
ALL questions must be answered – there are NO choice questions.
Answer in a neat, logical and legible handwriting.
Leave spaces between separate answers and start new questions on a clean page.
Start new facts in separate lines.
Number the questions clearly and correctly – from 2004 candidates will be penalised for incorrect numbering.
DON'T EVER USE TIPPEX.
Answer questions in either BLUE or BLACK ink.
If the question asks for three facts and the candidates give more, then ONLY THE FIRST THREE will be accepted. Many candidates lost marks as a result of this.
This information was communicated to schools during 2002. It has been strictly enforced in 2003.

Section A : Question 1
Generally this was well answered by the candidates. The candidates' spelling abilities, however, left much to be desired.
It would appear that many centres did not realise that capillarity is part of the syllabus. Many candidates did not know this answer. A general mistake was also confusion between HEAT-EXCHANGE MECHANISM and thermoregulation.
Question 1.3, which required higher order thought processes, was answered poorly, which clearly indicates that more attention should be given to the development of this skill.
Questions related to experimental work indicated that practical work has been neglected at many centres. Many candidates showed very little understanding of the scientific process and it seemed as if the prescribed practicals had merely been done theoretically (if, indeed, any attention had been given to the practicals).

Question 2
This question was generally poorly answered.
It seems that the functions of the kidney prose problems for the candidates every year. It has been suggested that the Biology curriculum advisers prepare guidelines with suggestions to the teachers on how to approach this section of the syllabus. Textbooks differ in their interpretation of the excretory functions and such a guideline from the advisory service would equip our candidates better in the future.

The differences between the concepts of artery, arteriole, vein and venule must be brought home to the candidates. The question w.r.t. the labeling of the renal tubules was done well. The functioning of the ADH in ensuring that sufficient water is retained in the body (question 2.1.5) was not answered very well as the candidates did not indicate the direction of the flow of water. This was also true for other questions where the candidates rarely referred to the DIRECTION in which the various substances move.

Candidates tended to simply provide a direct answer and failed to give the scientific explanation of events where it was required. HG candidates are expected to provide more correct scientific explanations. Candidates showed confusion over concepts such as absorption and re-absorption; excretion and secretion. The majority of candidates exhibited a poor understanding of the salt movement and the role of the kidney in maintaining the pH balance in the blood.

Question 3

It is heartening that the candidates fared better in the drawing of the graphs than in previous years. There were, however, centres where the majority of candidates confused the axes and placed the independent variable on the Y-axis instead of the X-axis. Such candidates were penalised. Candidates were also penalised when they did not indicate the various units or when the scales of the axes were wrong.

However, the question on the interpretation of the graph was generally poorly answered. Candidates were required to explain why there was a difference between the two graphs, but many just EXPLAINED what they observed on the graph, without DISCUSSING. This again indicates the need to develop the skills of logical, systematic thought processes and the sorting and classifying of information more at our schools.

Although the candidates answered this question fairly reasonably, there is much room for improvement in the interpretation of information. The terms “dorsal wall” and “ventral wall” pertaining to the walls of the guard cells are INCORRECT and are not acceptable. Teachers must refrain from using those terms (although they are mentioned in some textbooks). Again some confusion was evident regarding concepts such as guttation vs. transpiration and the factors influencing the different processes.

Question 4

It is unfortunate that there are still centres where the candidates confuse eye accommodation with pupil mechanism. An improvement has been evident, however, over the past few years. The internal structure of the eye and the functioning of the different parts must receive more attention at our schools. Examples of confusion: candidates stated that the ciliary body contracts (only muscles contract or relax and therefore it should be the ciliary muscle); they mentioned that the suspensory ligaments contract or relax (they should mention the tension on the ligament decreases of increases or the that ligaments slacken or become taut); many candidates refered to the lens becoming concave – this indicates a complete misconception of the characteristics of lenses in general and the lens of the eye in particular. The interpretation of accommodation as stated in the question regarding the wearing of convex lenses was answered poorly – again indicating that many HG candidates needed development of their higher order cognitive skills.

The question relating to the functioning of the ear was no well answered. Candidates failed to describe in detail the functions of the required parts and could also not extrapolate their knowledge regarding the sizes of the tympanum and the oval window to use the factor of size to explain the amplification of sound.

The question pertaining to the experimental design (4.3.1) was poorly answered. There were two reasons for this: firstly, candidates just gave the answers without giving the explanation as required by the question; and secondly, it was clear that many candidates did not have any understanding of the scientific (experimental) design. This skill will have to be developed in all earnest, especially w.r.t. the completion of practicals at our schools.

Question 5

The data response section of the question (5.1) was answered reasonably well, but the essay type question (5.2) was more poorly answered or, in many cases, not even attempted by the candidates. It may be that the candidates did not get enough practice at schools in answering this type of question. A general mistake made by candidates in 5.1 was that the units of measurement in many cases were not indicated. This was penalised. There needs to be more development regarding the drawing and interpretation of graphs and candidates should be made aware that all calculations and units MUST be indicated.

There seems to be some confusion at many centres regarding the variety of hormones, their glands, their target organs and their functions.

There were interpretation problems with the way that question 5.2 was structured and this will be taken up with the examination panel. There are, however, particular problems that should be addressed by our schools. The dilation of blood vessels indicates that it is a hot day, but many candidates explained adaptations for cold days. Candidates also described the whole thermoregulatory process instead of just the heat regulating process.