



# education

---

Department:  
Education  
**REPUBLIC OF SOUTH AFRICA**

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 11**

**LIFE SCIENCES P1**

**NOVEMBER 2007**

**MEMORANDUM (MARKING GUIDELINE)**

**This memorandum (marking guideline) consist of 11 pages**

**SECTION A****1.1**

1.1.1 C✓✓

1.1.2 B✓✓

1.1.3 C✓✓

1.1.4 B✓✓

1.1.5 D✓✓

(5x2)

**(10)****1.2**

1.2.1 renal capsule✓

1.2.2 eardrum/ tympanic membrane✓

1.2.3 hormones✓

1.2.4 pathogen✓

1.2.5 prokaryote/ bacteria✓

1.2.6 antibodies✓

**(6)****1.3**

1.3.1 F✓

1.3.2 H✓

1.3.3 A✓

1.3.4 E✓

1.3.5 J✓

1.3.6 D✓

**(6)****1.4**1.4.1 It is named after the fungus it is obtained from✓ that is  
*Penicillium notatum*

(1)

1.4.2 Antibiotics ✓

(1)

1.4.3 Careful observation ✓and powers of reasoning ✓to see the possible  
application ✓of his observation. Any 2

(2)

1.4.4 The technology and knowledge✓was not available at that time✓  
to make penicillin.

(2)

1.4.5 In war time many soldiers are wounded and many died because the  
wounds became infected by bacteria.✓ These drugs helped  
save many lives. ✓

(2)

1.4.6 Tuberculosis✓/ Pneumonia/ Cholera/Whooping cough/  
or any other bacterial disease✓(**do not accept any viral diseases**)**Mark first TWO only**

Any 2

(2)

**(10)**

**1.5**

- 1.5.1 Scapula/shoulder blade✓ (1)
  - 1.5.2 B✓F✓ (2)
  - 1.5.3 (a) hinge✓ (1)
  - (b) ball and socket✓ (1)
  - (c) gliding✓ (1)
- (6)**

**1.6**

1.6.1	No✓	Yes✓ (1)
1.6.2	They have normal intelligence✓/ normal life span/ good health and only differ in height ✓  OR Any other logical answer	The world is designed✓ for taller people✓ For example . most dwarfs would not be able to drive normal cars or use some public facilities like phones, ATMs etc  OR Any other logical answer (2)

- 1.6.3 Lack of knowledge/ information about the condition✓/ fear/ prejudice/ any other logical answer (1)
  - 1.6.4 In the past, peoples attitude was negative✓/ rejecting/stigmatizing/ dwarfs were isolated/any other appropriate descriptions.  
 People’s attitude presently still not completely positive✓but more accepting ✓  
 /seen as part of the community/any other appropriate descriptions  
 Any 2 (2)
- (6)**

**1.7**

- 1.7.1 Unicellular - made up of a single cell✓ (like bacteria/ protists)  
 Acellular - not made up of cells✓(like viruses) (2)
  - 1.7.2 Protists are mainly unicellular organisms/may or may not have chlorophyll ✓  
 Fungi are mainly multicellular organisms/ do not contain chlorophyll✓ (2)
  - 1.7.3 An infectious disease is one that can be passed from one individual to another by disease -causing organisms ✓(e.g. influenza, measles)  
 Non-infectious diseases are not passed from one individual to another by disease-causing organisms✓(e.g. diabetes, cancer) (2)
- (6)**

**TOTAL SECTION A: 50**

**QUESTION 2**

**2.1**

2.1.1 (a) KwaZulu Natal✓✓ (2)

(b) Lower level of knowledge of HIV and its transmission✓  
Lower use of condoms✓  
Many inaccessible rural areas✓so knowledge about prevention does not arrive here  
Fewer resources e.g. hospitals✓/ any other logical reason  
**Mark first TWO only** (2)

2.1.2 Western Cape✓✓ (2)

2.1.3 There is an increase in the proportion✓✓ of HIV infected women that attend antenatal clinics. (2)

2.1.4

- It does not take into account those females that do not attend antenatal clinics✓(pregnant/ not pregnant)
  - It does not take into account the children that are HIV positive✓
  - It does not take into account males that are HIV positive✓
  - Many people who are HIV positive have not been diagnosed✓
- Mark first THREE only** (3)

2.1.5

(a)	No✓	Yes✓ (1)
(b)	Disclosing your status could lead to negative attitudes from people/ being stigmatised/ ostracised / killed✓ etc OR Any other logical answer	Your partner/doctor needs to know your status to avoid getting infected and to enable treatment✓  OR Any other logical answer (1)

2.1.6

- Stay faithful to one partner✓
  - Abstain from sex✓
  - Use a condom✓
  - Do not share razors/ needles that could be contaminated with infected blood/body fluids✓
  - Any other logical preventative measure
- Mark first FOUR only** Any 4 (4)  
**(17)**

**2.2**

2.2.1 Toothpaste A/B/C✓ kills more /less bacteria✓/  
All✓ are equally effective in killing bacteria✓  
Different toothpastes✓ have different effects✓ on bacteria (2)

2.2.2 To prevent any other micro-organisms✓ (other bacteria/ fungi)  
from contaminating ✓the petri dish/prevent contamination (2)

2.2.3 Toothpaste C has the largest zone of no bacterial growth✓  
Toothpaste A has the second largest zone of no bacterial growth✓  
Toothpaste B has no zone of no bacterial growth✓ (3)

2.2.4 (a) Toothpaste C✓ (1)  
(b) It was most effective✓ in killing bacteria ✓ (2)

## 2.2.5

- The wells/holes were of equal size✓
- Same sterile cork borer was used✓
- Equal volumes of the different toothpaste were used✓
- Sterile nutrient agar was used✓
- All three toothpastes are placed in the same petri-dish✓

**Mark first THREE only**

(3)

**(13)**

**TOTAL QUESTION 2: 30**

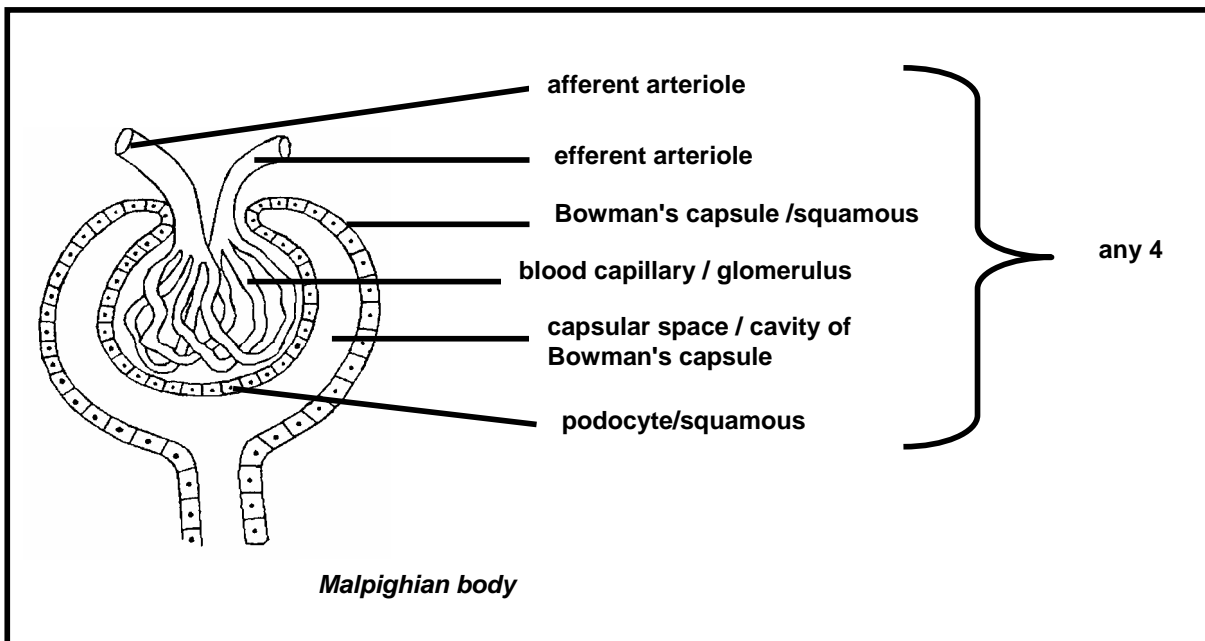
**QUESTION 3**

**3.1**

3.1.1 B – proximal convoluted tube ✓  
 C – loop of Henlè /descending limb of Henlè ✓  
 D - collecting tubule/duct ✓ (3)

3.1.2 C ✓ and D ✓ (2)

3.1.3



**Rubric for the mark allocation for diagram**

Diagram	Afferent arteriole is wider than efferent arteriole ✓ A cup shaped structure ✓
Caption	Malpighian body ✓
Labels	Any four (4) correct labels pointing to the appropriate structure ✓✓✓✓

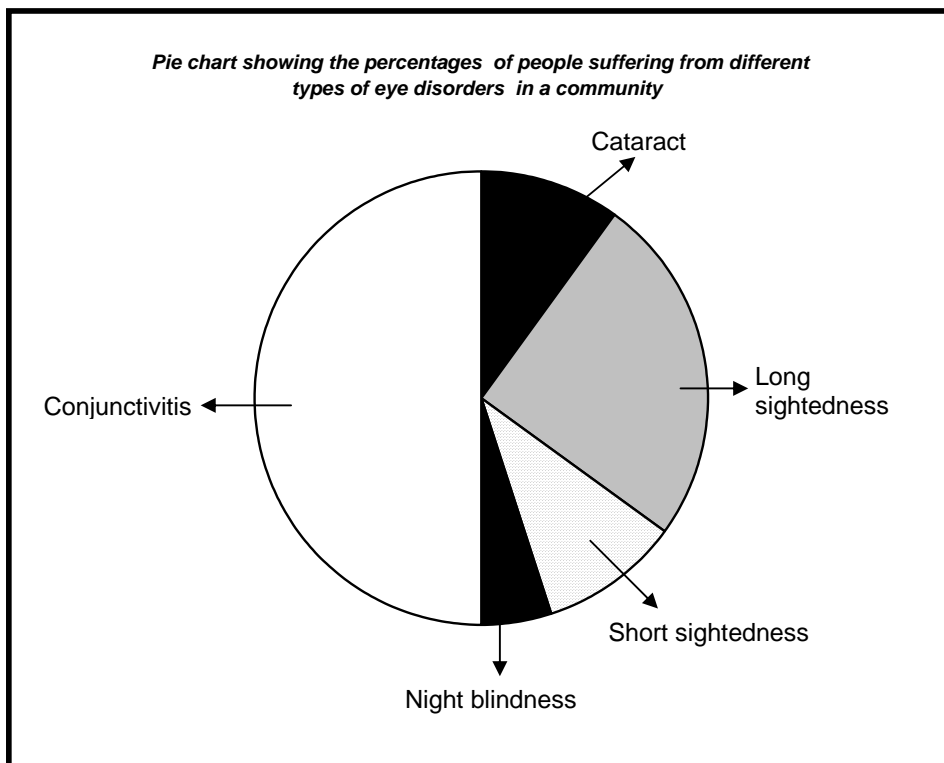
(7)  
**(12)**

**3.2**

3.2.1 Conjunctivitis ✓ (1)

3.2.2 35% ✓ (1)

3.2.3



**Rubric for the mark allocation of the Pie chart**

Correct type of graph	1		
caption	2		
Correct proportion of slices	3: draws 4 to 5 slices in correct proportions	2: draws 2 to 3 slices in correct proportions	1: draws 1 slice in correct proportion
Correct labelling of slices*	3: labels 4 to 5 slices correctly	2: labels 2 to 3 slices correctly	1: labels only one slice correctly

\* A key could replace correct labelling

Wrong type of graph drawn: marks lost for "correct type of graph" as well as for drawing of the slices of the pie.

(9)

(11)

**3.3**

- 3.3.1 Is there a relationship between the level of dust in the air ✓ and the occurrence of conjunctivitis? ✓ (2)
- 3.3.2 September ✓ (1)
- 3.3.3 250 ✓ arbitrary units ✓ (2)
- 3.3.4 Conjunctivitis is not affected ✓ by the level of dust in the air ✓ /  
There is no relationship ✓ between the incidence of conjunctivitis with the  
level of dust in the air ✓ / no pattern ✓ conjunctivitis is high even in months  
when the level of dust is low ✓ (2)
- (7)**

**TOTAL QUESTION 3: 30**

**SECTION C****QUESTION 4****4.1**

4.1.1 D✓✓

4.1.2 C✓✓

4.1.3 A✓✓

4.1.4 B✓✓

(8)

**4.2**

4.2.1 A Semi-lunar valves ✓

B Bicuspid valve ✓

(2)

4.2.2 (a) General diastole✓ All muscles relaxed✓ deoxygenated blood ✓flows from vena cavae✓ into the right atrium ✓and oxygenated blood ✓flows from the pulmonary veins ✓into the left atrium ✓ Any 3 (3)

(b) Atrial systole ✓ muscles of atria contract✓ while ventricle muscles remain relaxed✓ deoxygenated blood is forced from right atrium ✓ into the right ventricle✓ and oxygenated blood is forced from the left atrium ✓into the left ventricle ✓ Bicuspid and tricuspid valves are open✓while the semi lunar valves are closed✓ Any 4 (4)

(c) Ventricular systole✓ Muscles of atria relax✓ While muscles of ventricles contract✓ Blood forced out of left ventricle into aorta ✓ and from right ventricle into pulmonary arteries✓ Semi lunar valves open✓ while bicuspid and tricuspid valves close✓ Any 4 (4)

4.2.3 (a) A lot of water is lost in vomit/ loose stool✓resulting in a shortage of water in the blood✓ (2)

(b) lower blood volume✓results in lower blood pressure✓ OR higher blood volume✓results in higher blood pressure✓ (2)  
**(17)**

**4.3 SUGGESTED/ POSSIBLE ANSWER****AT THE HEART OF THE MATTER****Strategies that schools could use to prevent heart disease**

- Schools to promote good eating habits – by ensuring that tuck-shops sell healthy foods like milk, fresh fruit juices, fruit etc. and avoid selling sweets, chocolates, carbonated drinks etc.
- Ensure that schools emphasize an active lifestyle by promoting mass participation (by ALL learners) in sport and games – both competitive (for the sportspeople) and for fun.
- Lessons in all subjects should include aspects on healthy lifestyles and good dietary habits.
- Schools should invite doctors, nurses and nutritionists to give talks on healthy life styles, good dietary habits and about heart disease.
- Educate learners on factors such as stress and smoking, which contribute to heart disease.
- Monitor those learners who are at risk (family history, obese etc.) closely.
- Any other strategy.

**Strategies that the Health department/ medical aid societies could use to prevent heart disease**

- Build more sports fields/ community centers where the community can play sport or become involved in fitness activities
- Medical aid societies should allow their clients to become members of gyms at a reduced cost or free of charge
- Medical aid societies could offer discounts on leisure activities e.g. movie tickets
- Reduced membership fees if the client is leading an active lifestyle
- Conferences/ workshops/ talks/ TV programmes on causes and prevention of heart diseases
- Offer free testing for cholesterol, diabetes, and blood pressure which are related to heart diseases
- Advertise role models e.g. sports men and women to encourage and talk to the youth about healthy lifestyles
- Any other strategy

**View on organ donation**

- Support or does not support organ donation

**Reasons for supporting organ donation**

- Give somebody a new lease of life
- A dead person will have no use for these organs
- You or a family member may be a potential recipient of an organ
- Some religions/cultural views support organ donation

**Reasons for not supporting organ donation**

- Religious objections
- Cultural objections
- Personal choice stated as objections
- Some people may abuse the system
- Organ transplants are expensive

## Rubric to mark essay

CRITERIA	marks		
	2	4	6
Strategies used by schools	One appropriate strategy discussed	Two appropriate strategies discussed	Three or more appropriate strategies discussed
	1	2	3
Strategies used by Health department/medical aid society	One appropriate strategy discussed	Two appropriate strategies discussed	Three or more appropriate strategies discussed
Views on organ transplants	Support/ No support without appropriate reasons	Support/ No support with one appropriate reason	Support/ No support with two appropriate reasons
Synthesis	Significant gaps in the logic and flow of the answer	Minor gaps in the logic and flow of the answer	Well structured- demonstrates insight and understanding of the question

(15)

**TOTAL SECTION C: 40**  
**GRAND TOTAL: 150**