



FACULTY OF SCIENCE
FAKULTEIT NATUURWETENSKAPPE

DEPARTMENT OF BOTANY AND PLANT BIOTECHNOLOGY
DEPARTEMENT PLANTKUNDE EN PLANTBIOTEGNOLOGIE

MODULE

MCB2A01
BACTERIOLOGY & VIROLOGY
BAKTERIOLOGIE & VIROLOGIE

CAMPUS
KAMPUS

APK
APK

EXAM
EKSAMEN

18 JUNE 2014 (8:30-11:30)
18 JUNIE 2014 (8:30-11:30)

ASSESSOR (S)

MRS L. O'REILLY

INTERNAL MODERATOR
INTERNE MODERATOR

DR E. VENTER

DURATION 2 HOURS
TYDSDUUR 2 URE

MARKS: 110
PUNTE: 110

NUMBER OF PAGES:
AANTAL BLADSYE:

10 PAGES (SECTION A: p.2 SECTION B: p.6)
10 BLADSYE (AFDELING A: p.2 AFDELING B: p.6)

INSTRUCTIONS:
INSTRUKSIES:

ANSWER ALL THE QUESTIONS (SECTION A: 11 SECTION B: 8)
BEANTWOORD AL DIE VRAE (AFDELING A: 11 AFDELING B: 8)

NAME & SURNAME:

NAAM & VAN:

STUDENT NUMBER:

STUDENTENOMMER

TELEPHONE NUMBER:

TELEFOONNOMMER:

SECTIONS COMPLETED:
AFDELINGS VOLTOOI:

A: / 55

B: / 55

TOTAL MARKS:

/ 110

TOTAL

%

SECTION A: BACTERIOLOGY

QUESTION / VRAAG 1

[4]

Which structure is responsible for the Gram reaction? Discuss this structure.

Watter struktuur is verantwoordelik vir die Gram-reaksie? Bespreek die struktuur.

QUESTION / VRAAG 2

[4]

What is the difference between an infection and intoxication? Give an example of each.

Wat is die verskil tussen 'n infeksie en bedwelming? Gee 'n voorbeeld van elk.

QUESTION / VRAAG 3

[6]

Discuss the pathogenesis of cholera.

Bespreek die patogenese van cholera.

QUESTION / VRAAG 4

[4]

By which means may bacteria acquire new genetic material into their genome?

Op watter maniere kan bakterieë nuwe genetiese materiaal in hul genoom opneem?

QUESTION / VRAAG 5

[3]

Why is 'Q-fever' an asymptomatic disease and what is the significance of this characteristic?

Waarom is Q-koors 'n asimptomatiesie siekte en wat is die belangrikheid van hierdie kenmerk?

QUESTION / VRAAG 6

[13]

a. Which disease is implicated in the table below? Give scientific name.

(1)

Watter siekte word uitgebeeld in die onderstaande tabel? Gee die wetenskaplike naam.

b. Complete the table / Voltooi die tabel.

(12)

	STAGE 1	STAGE 2	STAGE 3	STAGE 4
Name of stage (4)				
Duration (time) (4)				
Symptoms (name 2) (8x½=4)	1. 2.	1. 2.	1. 2.	1. 2.

QUESTION / VRAAG 7

[12x½=6]

Match the following descriptions (A) to the suitable answer in B. Only write the number in the block.

Groep die volgende beskrywings (A) by die geskikte antwoord in B. Skryf slegs die nommer in die blok neer.

A: DESCRIPTIONS

B: ANSWER

- a. Inability to speak, breathe or swallow
- b. Degrades folic acid
- c. Carcinogenic aldehydes & acids
- d. Ragged ulcers with gray material
- e. Resembles an immune response
- f. Obligate intracellular human pathogen
- g. Lactose-fermenting bacterium
- h. Gas gangrene
- i. Organ failure
- j. Eliminates oxygen & inhibits bacterial growth
- k. Carcinogenic oxidizing agent
- l. Biological control

- 1. Antibiotics
- 2. Botulism
- 3. *Clostridium perfringens*
- 4. Carbonating
- 5. *Shigella*
- 6. *Escherichia coli*
- 7. *Haemophilus ducreyi*
- 8. Chlamydia
- 9. *Staphylococcus aureus*
- 10. Sulphonamides
- 11. Smoking
- 12. Nitrate

QUESTION / VRAAG 8

[3]

Define "coliform bacterium". / Definieer coliforme bakterium.

QUESTION / VRAAG 9

[6]

STUDY THE ILLUSTRATION AND ANSWER THE QUESTIONS / BESTUDEER DIE ILLUSTRASIE EN BEANTWOORD DIE VRAE

- a. Identify the organism that is responsible for this disease (scientific name). (1)
Identifiseer die organisme wat verantwoordelik is vir hierdie siekte (wetenskaplike naam).
- b. What is the common name of this disease?. (1)
Wat is die algemene naam van hierdie siekte?



c. Mention 2 advanced symptoms for this infection.

(2)

Noem 2 gevorderde simptome vir hierdie infeksie.

d. List two treatments for this type of infection.

(2)

Noem twee behandelings vir hierdie infeksie.

QUESTION / VRAAG 10

[3]

Can microwaves be used a sterilization technique? Discuss.

Kan mikrogolwe gebruik word as 'n sterilisasie-tegniek? Bespreek.

QUESTION / VRAAG 11

[3]

Name 3 side effects of antibiotics.

Noem 3 newe-effekte van antibiotika.

10

TOTAL MARKS BACTERIOLOGY:

/ 55

SECTION B: VIROLOGY

QUESTION / VRAAG 1

[6]

- a) What is the important advantage of the occurrence of one or few types of protomers in helical capsids? (2)

Wat is 'n belangrike voordeel van die voorkoms van een of 'n paar tipes protomere in helikale kapsiede?

- b) What is meant by “self-assembly” of a virion? (2)

Wat word bedoel met die “selfmontering” van 'n virion?

- c) Give two methods that viral spikes use to attach to a host. (2)

Gee twee metodes wat virale penne gebruik om aan 'n gasheer te vas te heg.

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QUESTION / VRAAG 2

[4]

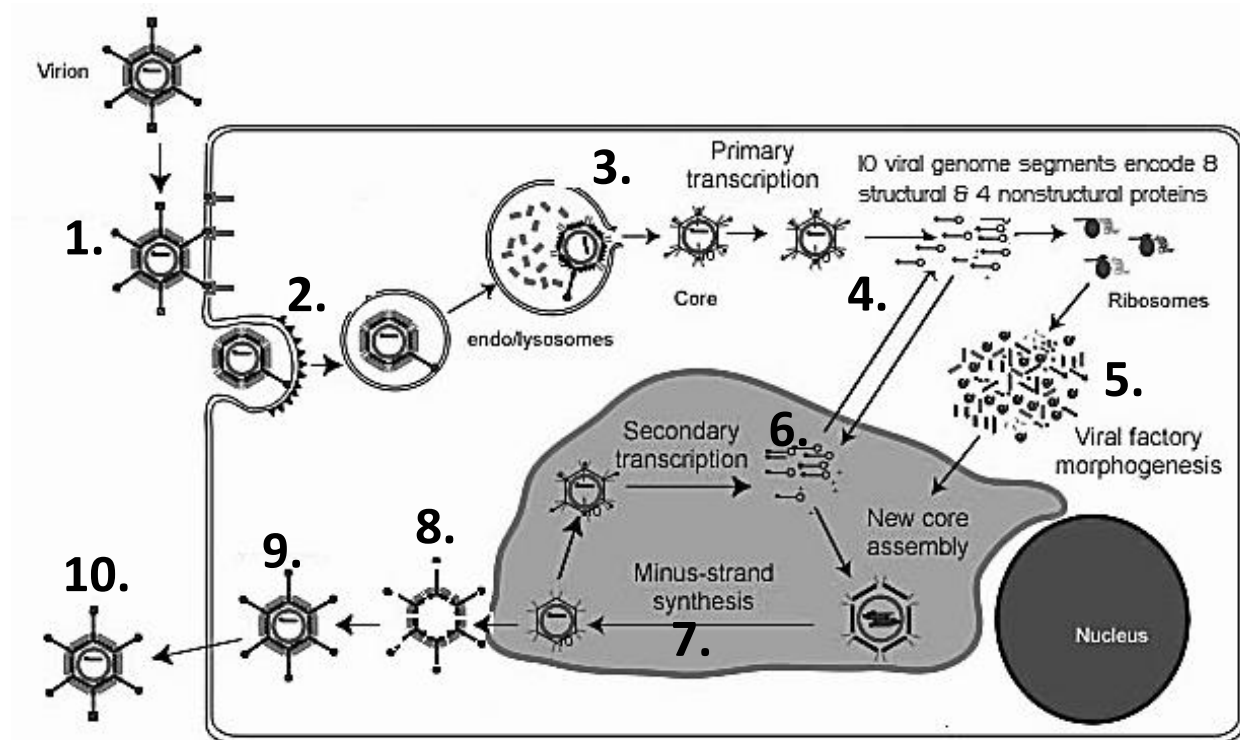
Discuss the two categories of viral transmission and give an example of each.

Bespreek die twee kategorieë van virale verspreiding en gee 'n voorbeeld van elk.

QUESTION / VRAAG 3

[20]

STUDY THE ILLUSTRATION AND ANSWER THE QUESTIONS / BESTUDEER DIE ILLUSTRASIE EN BEANTWOORD DIE VRAE



a) Label the following steps in the viral cycle:

(6)

Voorsien byskrifte aan die volgende stappe in die virale siklus:

[1] _____

[2] _____

[3] _____

[8] _____

[9] _____

[10] _____

b) Which type of viral infection is shown here?

(1)

Watter tipe virale infeksie word hier uitgebeeld?

c) Name the method of viral penetration. Give a short description of this method.

(3)

Noem die virale penetrasie metode. Voorsien 'n kort beskrywing van hierdie metode.

- d) Which type of genome is enclosed in the viral capsid? Provide an explanation for your answer. (3)**

Watter tipe genoom word in die kapsied omsluit? Voorsien 'n verduideliking vir jou antwoord,

- e) Which number/s represents “biosynthesis” of the virus inside the host? Explain your answer. (3)**

Watter nommer/s verteenwoordig “biosintese” van die virus binne die gasheer? Verduidelik jou antwoord.

- f) Which proteins are coded for by the viral genome and what are the functions of these proteins? (4)**

Watter tipe proteïene word deur die virale genoom gekodeer en wat is die funksie van hierdie proteïene?

QUESTION / VRAAG 4 **[4]**

Discuss the development of prion disease in a host.

Bespreek die ontwikkeling van prionsiekte in 'n gasheer.

QUESTION / VRAAG 5

[6]

Discuss the pathogenesis of Black vomit.

Bespreek die patogenese van 'Black vomit'

1.

2.

3.

4.

5.

6.

QUESTION / VRAAG 6

[6]

STUDY THE CELLS IN THE ILLUSTRATION AND ANSWER THE QUESTIONS

BESTUDEER DIE SELLE IN DIE ILLUSTRASIE EN BEANTWOORD DIE VRAE

a. How are the cells in the illustration cultivated? (1)

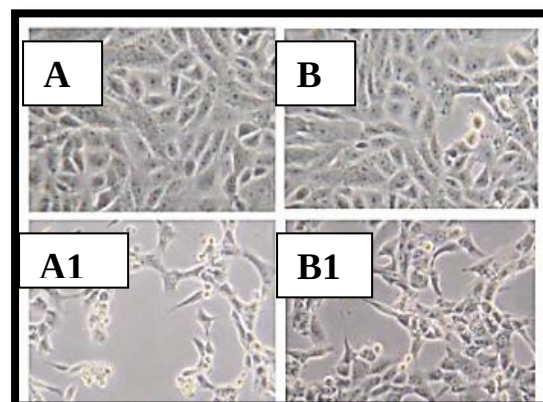
Hoe word die selle in die illustrasie gekweek?

b. Which morphological change is responsible for the result in A1 & B1? (1)

Watter morfologiese verandering is verantwoordelik vir die resultaat in A1 & B1?

c. Provide the method used to achieve this morphological change. (4)

Voorsien die metode wat gebruik is om hierdie morfologiese verandering te bewerkstellig.



QUESTION / VRAAG 7

[6]

a. Which complications could occur during a Hepatitis B infection?

(3)

Watter komplikasies kan voorkom gedurende 'n Hepatitis B infeksie ?

b. Why do Hepatitis B complications become chronic and which other disease could develop from this?

(3)

Waarom verander Hepatitis B komplikasies na chroniese simptome en watter ander siekte kan daarvolgens ontwikkel ?

QUESTION / VRAAG 8

[3]

Explain the terms 'attenuated viruses'.

Verduidelik die term 'verswakte virus'.

TOTAL MARKS VIROLOGY:

/ 55

The End
