Downloaded from SEE academy: www.seeacademy.coza

KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

LIFE SCIENCES

JUNE 2022

COMMON TEST

MARKS : 120

TIME: 2 Hours

SEE ACADEMY

This question paper consist of 12 pages.

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer ALL the questions.
2. Write ALL the answers in the ANSWER BOOK.
3. Start the answers to each question at the top of a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Present your answers according to the instructions of each question.
6. Do ALL drawings in pencil and label them in blue or black ink.
7. Draw diagrams, tables or flow charts only when asked to do so.
8. The diagrams in this question paper are NOT necessarily drawn to scale.
9. Do NOT use graph paper.
10. You may use a non-programmable calculator, protractor and a compass.
11. Write neatly and legibly.

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

SECTION A

QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A to D) next to the question number (1.1.1 to 1.1.7) in your ANSWER BOOK, for example 1.1.4 D.

1.1.1 Which of the following parts forms an axial skeleton?

A Arms, legs and vertebral column
B Skull, rib cage and sternum
C Lower limbs, skull, pelvic girdle
D Skull, vertebral column, ribs and sternum

1.1.2 Identify the tissue that covers the surface of the plant

A Xylem
B Epidermis
C Phloem
D Collenchyma

1.1.3 Which of the following cells makes up a xylem tissue?

A Xylem vessels and tracheids
B Sieve tubes and companion cells
C Tracheids and sieve tubes
D Companion cells and xylem vessels

1.1.4 Which of the following is a function of a pelvic girdle?

A Connect bone to bone
B Attaches arms
C Joins bone to muscles
D It attaches legs to the pelvic

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

1.1.5 Which of the following is the site of protein synthesis

A Golgi body
B Cell wall
C Ribosomes
D Plasma membrane

1.1.6 The similarity between sclerenchyma and collenchyma tissue is that…

A They are both packaging tissues
B They both contain flexible fibres
C They both provide support to the plant
D They both manufacture food

1.1.7 What is the magnification of the eye piece if the total magnification is 40x and the objective lens is 10x

A 4x
B 40x
C 15x
D 2x

2x7 **(14)**

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question number (1.2.1 to 1.2.9) in your ANSWER BOOK

1.2.1 An organic compound made up of three fatty acids and one glycerol

1.2.2 The bones that protects the spinal cord

1.2.3 The knob of microscope that is used for final and clear focus of the object

1.2.4 Movement of molecules from a region of high concentration to lower concentration

1.2.5 The tissue that line kidney tubes and some glands

1.2.6 The tissue transport food from the leaves to all parts of the body

1.2.7 Membrane that surround a vacuole

1.2.8 Bones that surround and protect of the brain

1.2.9 The Monomers of proteins 1x9 **(9)**

1.3 Indicate whether each of the statements in COLUMN I applies to **A ONLY**,**B ONLY**, **BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only**, **B only**,**both A and B**, or **none** next to the question number (1.3.1 to 1.3.4) in the ANSWER BOOK.

COLUMN I	COLUMNII
1.3.1 The tissue that serves as a storage tissue	A: Collenchyma B: Sclerenchyma
1.3.2 Connective tissue made up of collagen fibres	A: Fibrous Connective tissue B: Loose connective tissue
1.3.3 Separates xylem from phloem	A: Pith B: Cambium
1.3.4 Opening at the base of the skull	A: Foramen magnum B: Jaws

2x4**(8)**

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

1.4 The table below shows the results of different food test.

NUTRIENT	TEST MATERIAL	PRESENCE OF NUTRIENTS
T	Iodine solution	Blue-black
Glucose	**U**	**V**
W	Ethanol	White

1.4.1 Which nutrient was tested at:

(a) **T** (1)

(b) **W** (1)

1.4.2 Give ONE example of a monosaccharaide from the table above (1)

1.4.3 State TWO functions of monosaccharide mentioned in QUESTION 1.4.2 (2)

1.4.4 What colour change is expected at **V** for positive test (1)

1.4.5 Name the chemical reagent at **U** (1)

1.4.6 What would be the colour change if **T** tested negative (1)

1.4.7 State the nutrient which requires heat when tested (1)

(9)

TOTAL SECTION A: (40)

SEE ACADEMY

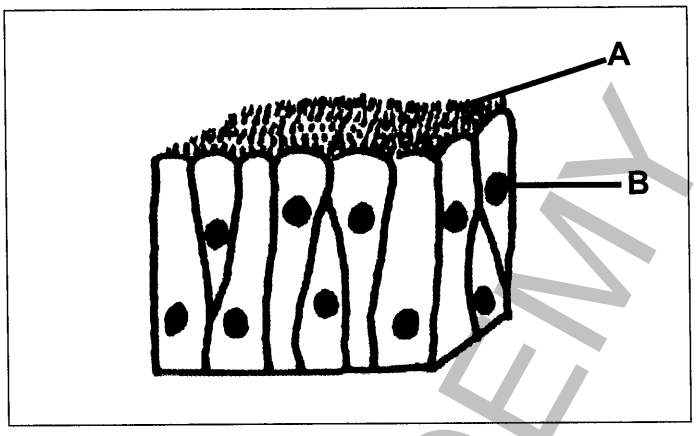
Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

SECTION B

QUESTION 2

2.1 The diagram below shows an animal tissue



2.1.1 Identify the tissue above (1)

2.1.2 Identify part **B** (1)

2.1.3 Give only the LETTER of the part that traps the dust in the above tissue (1)

2.1.4 Explain TWO ways in which the tissue mentioned in QUESTION 2.1.1 is structurally suited to perform its function (4)

2.2 Explain THREE adaptations of xylem tissue for its function **(7)**

(6)

[13]

2.3 Grade 10 learners conducted an investigation to determine the effect of different light intensities on the rate of transpiration in leaves.

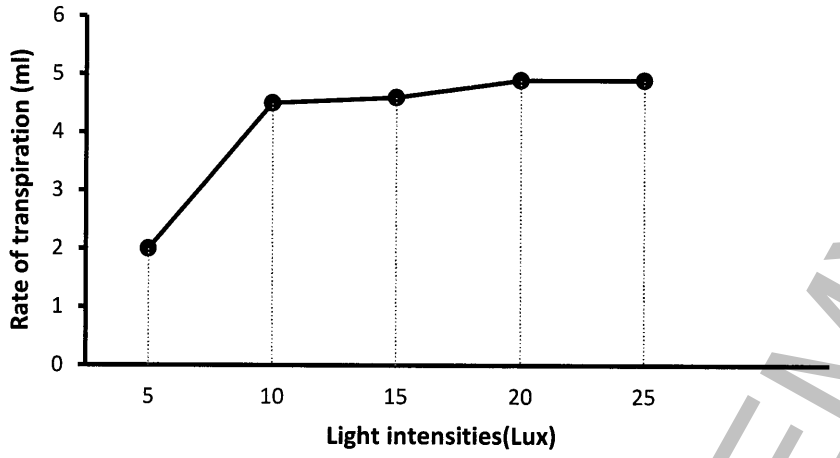
The following procedure was followed:

- 2 leafy shoot of the same plant were used
- The leafy shoots were of the same age
- The leafy shoots were then labelled leafy shoot A and leafy shoot B
- Leafy shoot A was exposed to different light intensities
- Leafy shoot B was placed in a dark area
- All others factors affecting transpiration rate were kept constant
- Potometer was used to measure the rate of transpiration in both groups
- The results of the investigation were recorded in every hour for each group

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

The results for leafy shoot A are shown in the graph below



2.3.1 Identify:

(a) Dependent variable (1)

(b) Independent variable (1)

2.3.2 State the effect of increasing the light intensity on transpiration rate from 0 to 5 (1)

2.3.3 Explain why an increase in light intensity above 10 does not increase the rate of transpiration (2)

2.3.4 List TWO ways in which learners could increase the reliability of the investigation (2)

2.3.5 List TWO factors affecting the rate of transpiration other than the one that was investigated (2)

2.3.6 Explain why group B was included in the investigation (2)

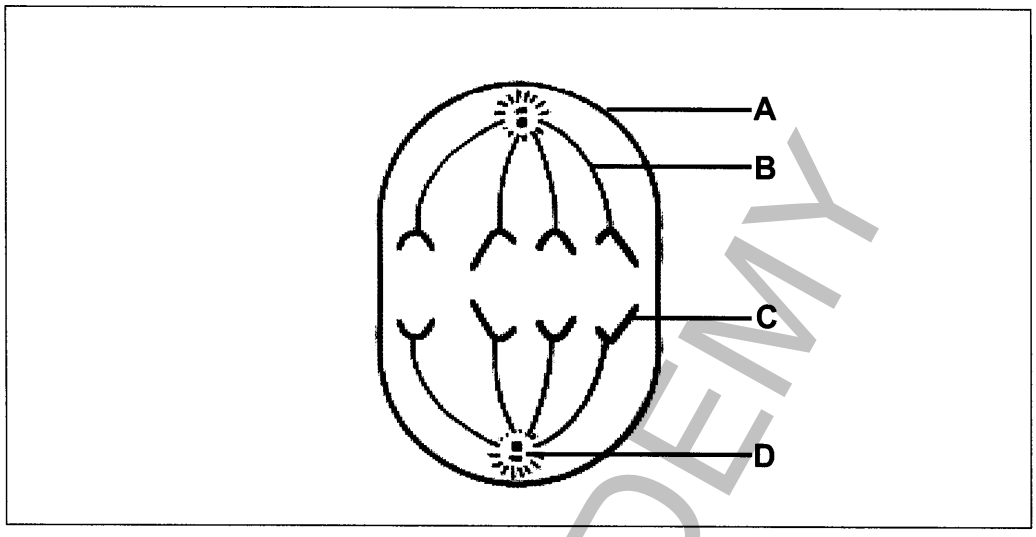
2.3.7 State the conclusion for the above investigation (2)
(13)

SEE ACADEMY

Copyright reserved

Downloaded from SEE academy: www.seeacademy.coza

2.4 The diagram below shows a phase of mitosis.



2.4.1 Identify the phase shown in the diagram above (1)

2.4.2 Give TWO visible reason for your answer (2)

2.4.3 Identify part:

(a) **A** (1)

(b) **B** (1)

2.4.4 State the LETTER and the NAME of the part that is not present in a plant cell (2)

2.4.5 Name and describe the events of the phase that appears before the one shown in the diagram above (4)

2.4.6 Give THREE biological importance of mitosis (3)

(14)

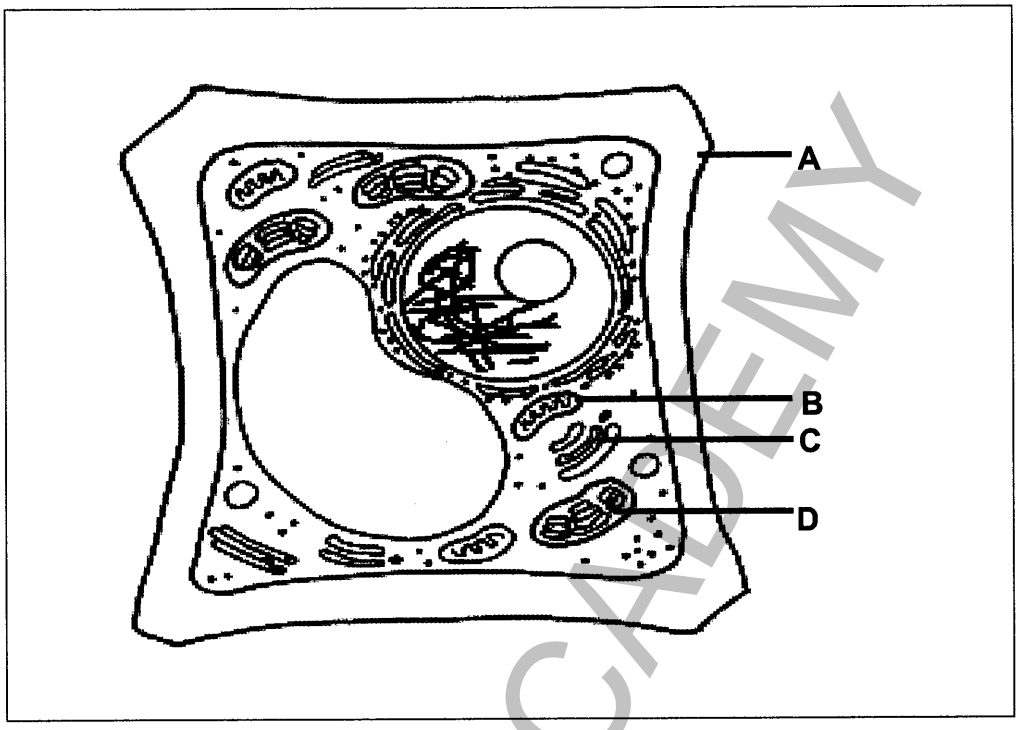
TOTAL QUESTION 2 [40]

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

QUESTION 3

3.1 The diagram below shows a part of a cell .



3.1.1 Identify organelle:

(a) **C** (1)

(b) **D** (1)

3.1.2 Is the above cell a plant cell or animal cell? Give THREE visible reasons for your answer (4)

3.1.3 State THREE functions of part **A** (3)

3.1.4 Give the LETTER of the part that need to be in great numbers in a muscle tissue. Explain your answer. (3)

3.1.5 Part **D** contains a pigment which essential for photosynthesis taking place in plants.

Name the pigment and explain its role during photosynthesis (3)
(15)

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

3.2 The table below shows the percentage of blood that passes through various organs in the body per minute

ORGANS	Amount of blood flow (%)
Liver	25
Brain	15
Small intestines	15
Kidneys	20

3.2.1 Draw a bar graph to represent the information shown in the table above (6)

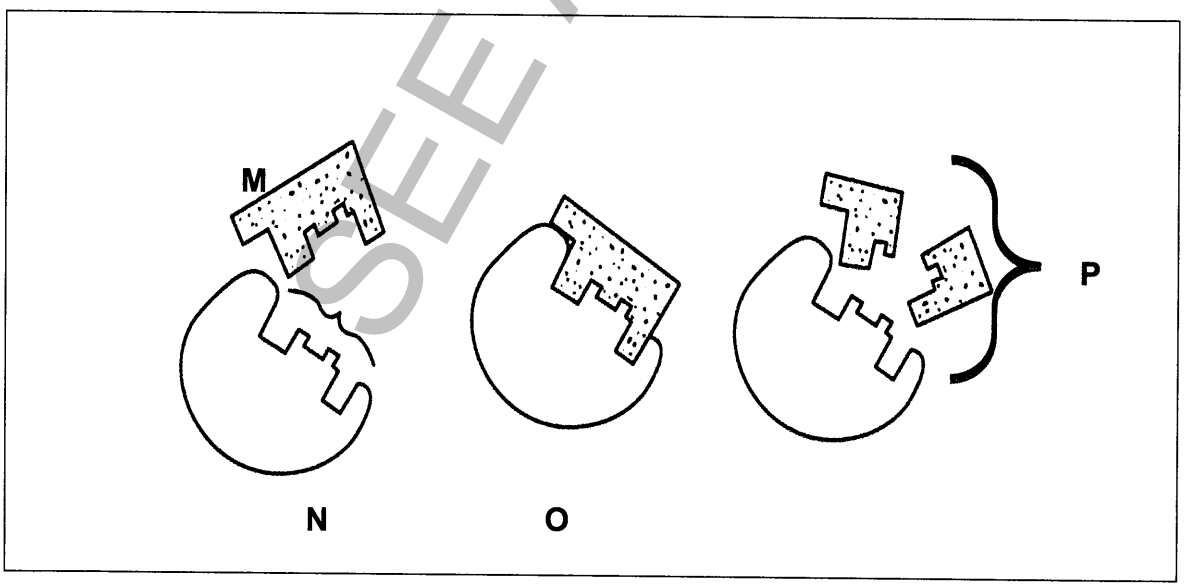
3.2.2 Calculate the amount of blood that flows to other organs other than the one's mentioned in the table. Show ALL your workings (3)

(9)

3.3 Tabulate TWO structural differences between an artery and vein **(5)**

(14)

3.4 The diagram below shows a certain organic compound



3.4.1 Give labels for:

(a) **M** (1)

(b) **O** (1)

(c) **P** (1)

SEE ACADEMY

Downloaded from SEE academy: www.seeacademy.coza

3.4.2 State the property of enzyme illustrated above (1)

3.4.3 List TWO properties of enzymes other than the one mentioned in QUESTION 3.4.2 (2)

3.4.4 Explain why part **P** has broken (1)

3.4.5 Hyperthermia is a condition where a body becomes overheated in response to prolonged hot, humid weather and can results to part **N** being denatured or damaged.

Explain the effects of part **N** in human body if it becomes denatured. (4)

TOTAL QUESTION 3 (11)
TOTAL SECTION B (40)
[80]

GRAND TOTAL

[120]

SEE ACADEMY

Copyright reserved