



GOVERNMENT OF SAMOA

STUDENT EDUCATION NUMBER

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Samoa National Junior Secondary Certificate

BIOLOGY

2023

QUESTION and ANSWER BOOKLET

Time allowed: 3 Hours & 10 minutes

INSTRUCTIONS

1. You have 10 minutes to read **before** you start the exam.
2. Write your **Student Education Number (SEN)** in the space provided on the top right-hand corner of this page.
3. **Answer ALL QUESTIONS.** Write your answers in the spaces provided in this booklet.
4. If you need more space, ask the Supervisor for extra paper. Write your SEN on all extra sheets used and clearly number the questions. Attach the extra sheets to the appropriate places in this booklet.

STRANDS		Pages	Time (min)	Weighting
STRAND 1	VARIETY OF LIFE	2-5	36	20
STRAND 2	CELL BIOLOGY	6-10	36	20
STRAND 3	ANIMAL BIOLOGY	11-14	36	20
STRAND 4	PLANT BIOLOGY	15-19	36	20
STRAND 5	ENVIRONMENT	20-23	36	20
TOTAL			180	100

Check that this booklet contains pages 2-24 in the correct order and that none of these pages are blank.

HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

For Questions 1 to 3, choose and write the LETTER of the correct answer in the box provided.

1. Which of the following microorganisms is responsible for causing symptoms such as abdominal pain, diarrhea, and vomiting?

- A. *Streptococcus pyogenes*.
- B. *Rabies lyssavirus*.
- C. *Escherichia coli*.
- D. *Pseudomonas aeruginosa*.

SL 1

2. Which of the following statements is true about the differences between antiseptics and disinfectants?

- A. Antiseptics are used on non-living objects, while disinfectants are used on living tissue.
- B. Antiseptics are used on living tissue, while disinfectants are used on non-living objects.
- C. Antiseptics and disinfectants are interchangeable and can be used for the same purposes.
- D. Antiseptics are stronger and more effective than disinfectants.

SL 1

3. Which of the following microbes are commonly used in the production of antibiotics?

- A. Fungi
- B. Archaea
- C. Algae
- D. Protozoa

SL 1

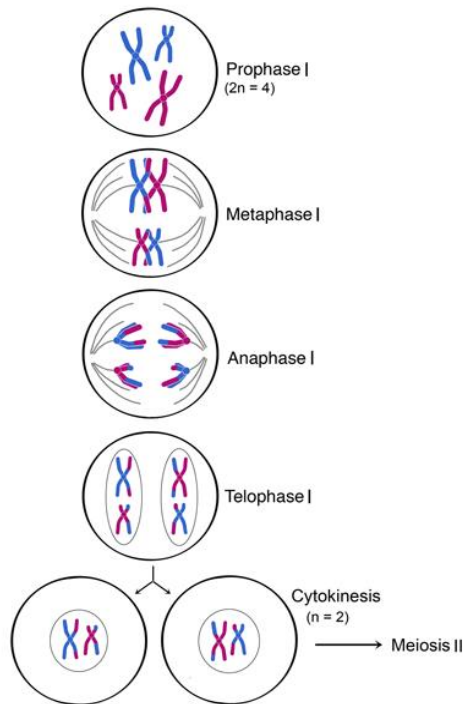
4. Briefly describe the process by which bacteria reproduce.

SL 2

12. Describe how osmosis and diffusion are different.

SL 2

13. Use the diagram below of Meiosis 1 to determine what happens to the chromosomes in Metaphase 1 and Anaphase 1.



Source: http://cyberbridge.mcb.harvard.edu/mitosis_6.html

SL 2

For Questions 18 and 19, choose and write the LETTER of the correct answer in the box provided.

18. Which of the following animals uses gizzard to grind up food in their digestive system?

- A. Human
- B. Fish
- C. Bird
- D. Frog

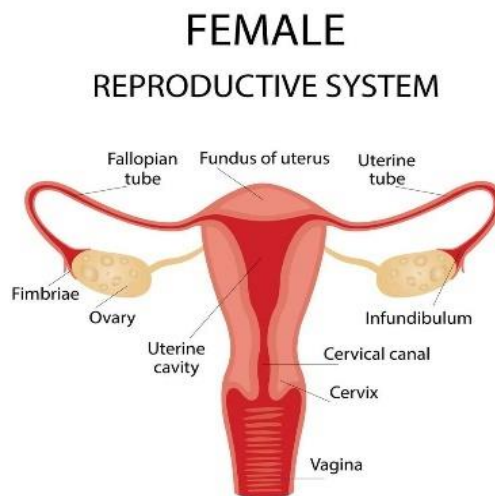
SL 1

19. Which gland is responsible for producing testosterone in males?

- A. Adrenal gland
- B. Thyroid gland
- C. Pituitary gland
- D. Testes

SL 1

20. Use the diagram below to describe the function of the fallopian tube and the ovary in the female reproductive system.



SL 2

Source: <https://www.vecteezy.com/vector-art/10065996-human-anatomy-female-reproductive-system-female-reproductive-organs-the-system-of-inclusion-the-organs-of-the-uterus-cervix-ovaries-ovaries-and-fallopian-tubes-overview-illustration>

For Questions 26 to 28, choose and write the LETTER of the correct answer in the box provided.

26. Which of the following statements about translocation is true?

- A. It is the movement of water molecules across a selectively permeable membrane.
- B. It is the movement of ions from an area of higher concentration to an area of lower concentration.
- C. It is the movement of carbohydrates or other organic compounds from one part of a plant to another.
- D. It is the movement of nutrients from the soil into the roots of a plant.

SL 1

27. Which of the following is a byproduct of photosynthesis?

- A. Oxygen
- B. Carbon dioxide
- C. Glucose
- D. Water

SL 1

28. Which of the following factors can affect the rate of photosynthesis?

- A. The color of the plant's leaves.
- B. The size of the plant's stem.
- C. The amount of nitrogen in the soil.
- D. The intensity of light.

SL 1

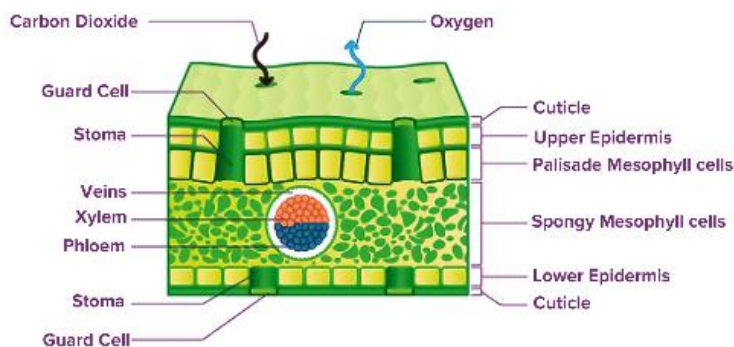
29. Discuss the process of photosynthesis and the **THREE** important roles it provides for plants and other living organisms.

SL 4

33. Describe the significance of translocation in plants.

SL 2

34. Use the diagram below, illustrating the internal structures of a dicot leaf, to discuss the structure and function of the following *epidermis, mesophyll, stomata, and vascular tissues*.



Source: <https://byjus.com/question-answer/what-is-the-internal-structure-of-a-leaf/>

SL 4

For Question 35, choose and write the letter of the correct answer in the box provided.

35. Which of the following best describes parasitism?

- A. A relationship where both organisms benefit.
- B. A relationship where one organism benefits and the other is unaffected.
- C. A relationship where one organism benefits at the expense of the other.
- D. A relationship where both organisms are harmed.

SL 1

36. Describe what ecological tolerance is and state a factor that affects it.

SL 2

37. Describe **TWO** methods used to control pests and how they differ when used.

SL 2

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SNJSC BIOLOGY

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(For Scorers only)

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STRAND 1	VARIETY OF LIFE	20			
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TOTAL		100			