Life Sciences **Grade 11**
Term 2 **Test 11.2.1**
Photosynthesis and respiration

Question 1

Each of the questions below has only ONE correct answer. Write down the question number with the correct answer next to it, e.g. 1.21 A

1.1 Which of the following are the two main products of photosynthesis?
- A oxygen and carbon dioxide
- B chlorophyll and oxygen
- C sugars/carbohydrates and oxygen
- D sugars/carbohydrates and carbon dioxide

1.2 Which of the following are the substrates (raw materials) during photosynthesis?
- A oxygen and water
- B carbon dioxide and water
- C carbon dioxide and oxygen
- D sugars/carbohydrates and chlorophyll

1.3 During the light phase of photosynthesis, energy is stored in the form of .....
- A glucose
- B photons
- C ADP
- D ATP

1.4 What is the green pigment in plants called that can collect sunlight energy and convert it to useful energy?
- A chlorophyll
- B chloroplasts
- C ADP
- D ATP

1.5 In which compartment of the plant cell does the light phase of photosynthesis take place?
- A stroma
- B thylakoid membrane
- C spongy parenchyma
- D palisade parenchyma

1.6 During the light-dependent phase (light phase) of photosynthesis, (1) is used and (2) is released.
- A (1) carbon dioxide; (2) oxygen
- B (1) oxygen; (2) carbon dioxide
- C (1) water; (2) carbon dioxide
- D (1) water; (2) oxygen

1.7 During the dark phase of photosynthesis, (1) is used and (2) is synthesized.
- A (1) carbon dioxide; (2) water
- B (2) water; (2) glucose
- C (1) oxygen; (2) glucose
- D (1) carbon dioxide; (2) glucose

1.8 The light independent phase (dark phase) is known as the …..
- A Calvin cycle
- B Energy cycle
- C Carbohydrate cycle
- D Starch cycle

1.9 Which of the following are NOT factors directly affecting the photosynthesis rate.
- A light intensity
- B oxygen concentration
- C carbon dioxide concentration
- D temperature

1.10 The site of aerobic respiration in cells is…..
- A chloroplast
- B thylakoid
- C mitochondrion
- D cytosol

1.11 Folds of the inner membrane of a mitochondrion which increases the surface for chemical reactions, are called…..
- A the intermembrane space
- B the matrix
- C granules
- D cristae

1.12 The place where glycolysis occurs in eukaryotes.
- A cytosol
- B matrix
- C inner membrane of the mitochondria
- D intermembrane space

1.13 Another word for the Krebs cycle.
- A Calvin cycle
- B Intermediate phase
- C Citric acid cycle
- D Dark phase

1.14 The final electron receptor during the electron transfer system of aerobic respiration.
- A carbon dioxide
- B oxygen
- C co-enzyme Q
- D ATP

1.15 The following is NOT a product of aerobic respiration.
- A ATP
- B carbon dioxide
- C water
- D oxygen

1.16 The following is required during aerobic respiration.
A carbon dioxide
B sunlight
C glucose
D water

1.17 Energy formed during aerobic respiration is in the form of…..
A ATP
B glucose
C starch
D fructose

1.18 The following is NOT a product of fermentation.
A alcohol
B water
C carbon dioxide
D ATP

1.19 Product formed in muscles when an unfit person performs severe exercises
A oxygen
B water
C ethanol
D lactic acid

1.20 Which product of fermentation is useful during the baking of bread?
A carbon dioxide
B oxygen
C ethanol
D ATP

20 x 2 = **(40)**

Question 2
Give one word for each of the following:

2.1 Organisms who manufacture their own organic food.
2.2 The process during which green plants convert the energy of the sun into useful energy.
2.3 What does ATP stand for?
2.4 The wax layer on a leaf that limits water loss.
2.5 A group of stacked thylakoids.
2.6 The space within the double membranes of the mitochondrion containing respiratory enzymes.
2.7 The first stage of aerobic respiration that occurs outside the mitochondria.
2.8 Pyruvate enters the intermediate phase and is converted into _____ with which the Krebs cycle starts.
2.9 The enzyme produced by ATP by the process known as chemiosmosis.
2.10 Another word for anaerobic respiration in host cells.

(10)

Question 3

3.1 Explain why carnivores, like lions, depend on photosynthesis for survival. **(10)**

3.2 Does all plants photosynthesize? Discuss. **(5)**

3.3 Explain how the carbon dioxide concentration influences the rate of photosynthesis. Draw a rough graph to illustrate your explanation. **(8)**

3.4 Name and briefly discuss THREE reasons why photosynthesis is important. **(9)**

3.5 Make a labeled diagram of a mitochondrion. **(10)**

3.6.1 Use a table to compare aerobic and anaerobic respiration for the following properties:

- transfer of electrons in NADH
- terminal electron receptor
- reduced end products
- number of ATP molecules formed per glucose molecule. **(8)**

TOTAL: 100