

تم تحميل هذا الملف من موقع المناهج الإماراتية



مراجعة نهائية وفق الهيكل الوزاري منهج انسابير الخطة A-M101

موقع المناهج ← المناهج الإماراتية ← الصف الحادي عشر المتقدم ← علوم ← الفصل الأول ← ملفات المدرس ← الملف

تاريخ إضافة الملف على موقع المناهج: 2024-11-23 19:29:26

ملفات اكتب للمعلم اكتب للطالب الاختبارات الكترونية الاختبارات ا حلول اعروض بوربوينت ا أوراق عمل
منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك الامتحان النهائي للمدرس

المزيد من مادة
علوم:

إعداد: محمد أحمد رجب

التواصل الاجتماعي بحسب الصف الحادي عشر المتقدم



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الحادي عشر المتقدم والمادة علوم في الفصل الأول

حل الكراسة التدريبية للاختبار النهائي وفق الهيكل الوزاري

1

الكراسة التدريبية للاختبار النهائي وفق الهيكل الوزاري

2

حل وملخص كامل وحدات ودروس المنهج

3

أسئلة مراجعة نهائية شاملة

4

الهيكل الوزاري الجديد منهج انسابير الخطة C

5



التوأمة بين مدرسة الظاهرة ومدرسة العطاء

Biology Final Revision

Grad 11 Advanced – Inspire (M)

CH1-Cellular Energy

Term 1

2023-2024

Biology Teacher

Mohammad Rajab

School Principal

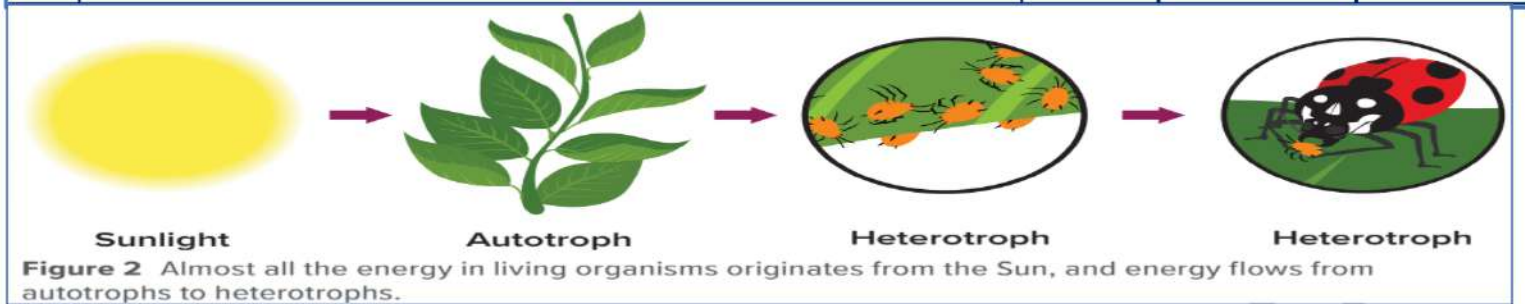
Amna Alshamsi



Name:-----

Revision Biology: Gr 11 Advanced

1	BIO.3.4.01.028 Describe the complementary processes of cellular respiration and photosynthesis with respect to the flow of energy and the cycling of matter within ecosystems, and explain how human activities can disrupt the balance achieved by these processes	U2M8L1	Figure 2	page 180
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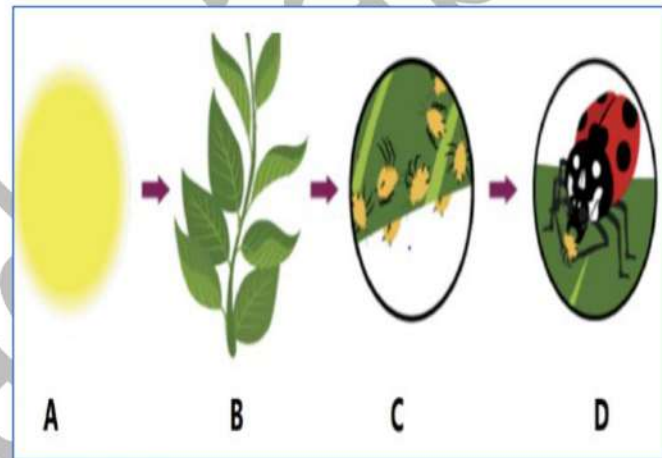


1- Which of the following refers to an organism that can transform light energy into chemical energy (Autotrophic organism)?

- a- A
- b- B
- c- (B and C)
- d- (B,C and D)

2- Which of the following refers to an organism that can transform chemical energy into mechanical energy (heterotrophic organism)?

- a- A and C
- b- B only
- c- C only
- d- D and C



3- According to the second law of thermodynamic, Which of the following letters represents the trophic level with the highest entropy and least useable energy?

- A
- B
- C
- D

4- Which of the following letters represents the trophic level with the lowest entropy and higher useable energy??

- A
- B
- C
- D

5- Which law of thermodynamics explains why the ladybug receives the least amount of usable energy?

- A. Energy
- B. Law of conservation of energy
- C. the first law
- D. Entropy increases (the second law)

6- Which the following is an example of the second law of thermodynamics (entropy increases)?

- A- converted energy
- B- food chain.
- C- Photosynthesis
- D- homeostasis

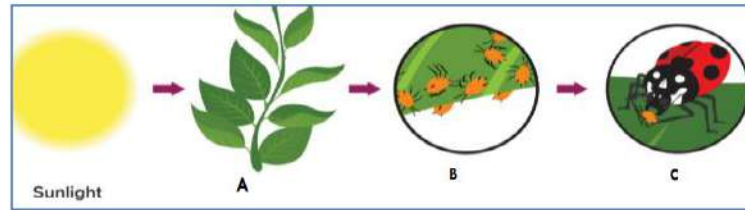
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7- Which organism depends on an external source of organic compounds?

- A. autotroph
- B. heterotroph.
- C. chemoautotroph
- D. photoautotroph.

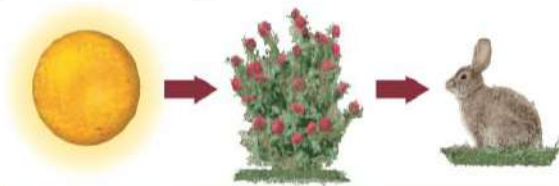
8- Which energy transformation can occur only in autotrophs?

- A- chemical energy into mechanical energy.
- B- electrical energy into thermal energy.
- C- light energy into chemical energy.
- D- mechanical energy into thermal energy.



9- Which part of this food chain provides energy to just one other part?

- A. the chemoautotroph
- B. the heterotroph
- C. the Sun
- D. the photoautotroph



2	BIO.3.4.01.028 Describe the complementary processes of cellular respiration and photosynthesis with respect to the flow of energy and the cycling of matter within ecosystems, and explain how human activities can disrupt the balance achieved by these processes	U2M8L1	Figure 3	page 180
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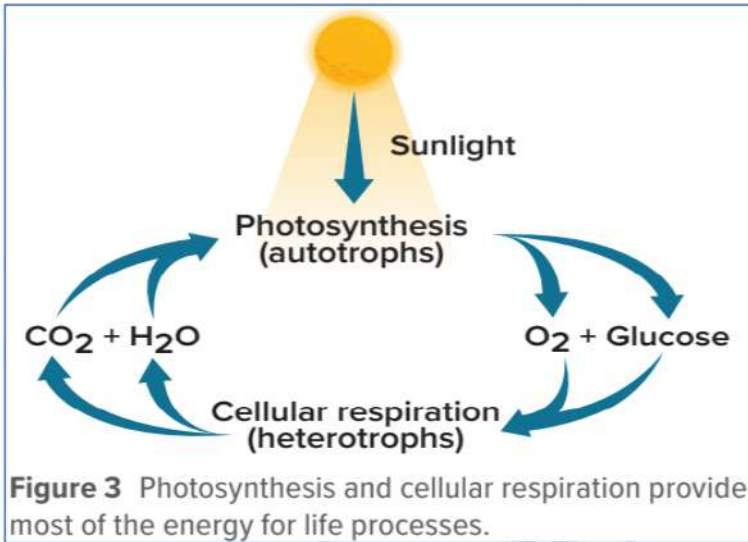


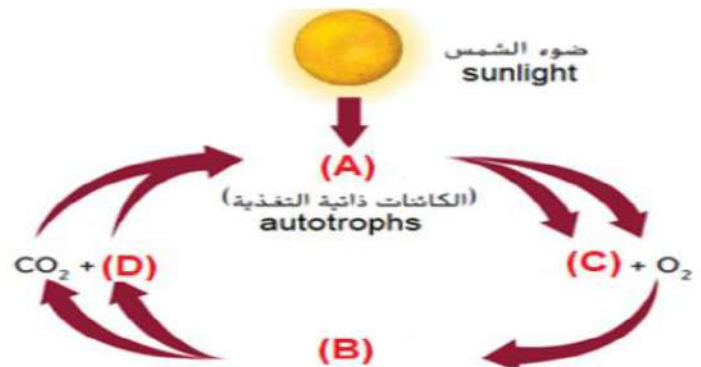
Figure 3 Photosynthesis and cellular respiration provide most of the energy for life processes.

1- **Photosynthesis** is anabolic pathway, light energy from the Sun is converted to chemical energy for use by the cell (**The buildup of complex organic molecules from simpler ones**) -**require energy**

2- Cellular respiration is catabolic pathway, organic molecules are broken down to release energy for use by the cell (**The breakdown of complex organic molecules into simpler ones**) -**release energy**

10- Which of the following is an incorrect labeling?

- 1- A-Photosynthesis
- 2- B- Cellular respiration
- 3- C- Glucose
- 4- D- Chlorophyll

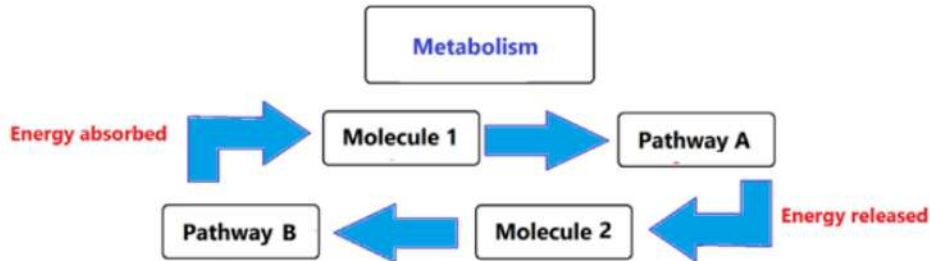


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11- Why is cellular respiration a catabolic pathway?

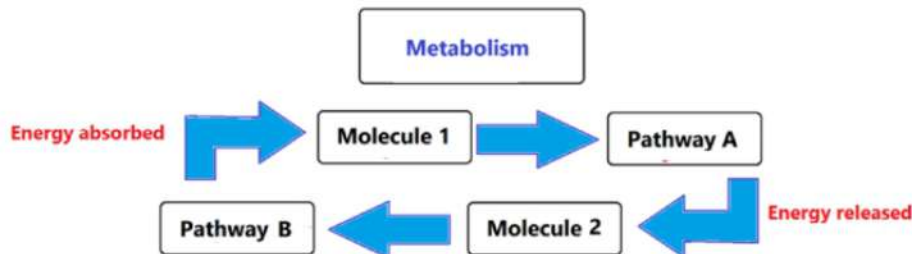
- A- Energy is used to form glucose and oxygen.
- B- Energy is converted from water to carbon dioxide.
- C- Energy that is lost is converted to thermal energy.
- D- Energy is released by the breakdown of molecules.

The figure below demonstrates the metabolism in the plants, which is a series of chemical reactions in the cell where a product of one reaction is a substrate of the next reaction. Which of the following is a correct description of the ongoing process?



- A- Pathway A represents the catabolic pathway. (Cellular respiration)
- B- Pathway A represents the anabolic pathway.
- C- Molecule 2 is bigger than the molecule 1.
- D- Pathway B represents the catabolic pathway.

The figure below demonstrates the metabolism in the plants, which is a series of chemical reactions in the cell where a product of one reaction is a substrate of the next reaction. Which of the following is a correct description of the ongoing process?



- A- Pathway A represents the anabolic pathway.
- B- Pathway B represents the cellular respiration.
- C- Molecule 2 is bigger than the molecule 1.
- D- Pathway B represents the Photosynthesis. (anabolic pathway)

3	BIO.3.1.02.025 Identify examples of the functions performed by the living organisms in which ATP is converted into ADP and inorganic phosphate.	U2M8L1	Figure 4	page 181
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14- Energy is released from ATP when?

- A- phosphate group is added
- B- adenine bonds to ribose.
- C- ATP is exposed to sunlight
- D- phosphate group is removed.

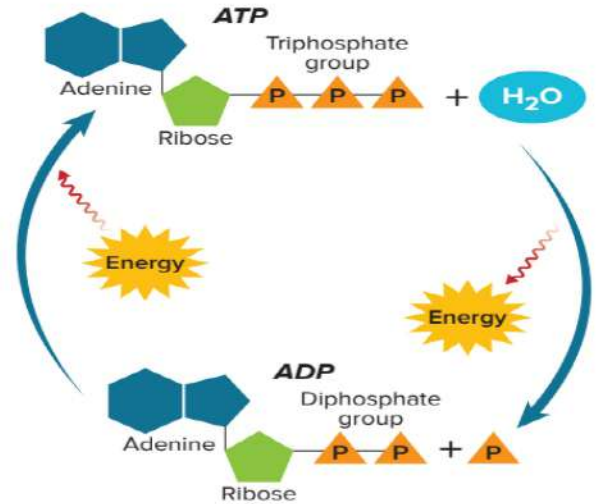
15- Why is adenosine triphosphate (ATP) such an important biological molecule?

- A- It captures light energy from the sun.
- B- It is produced in anabolic pathways.
- C- It stores and releases chemical energy.
- D- It converts mechanical energy to thermal energy.

16- Look at the following figure. Which molecule is released when ATP becomes ADP?

- A- phosphate group
- B- water molecule
- C- ribose sugar
- D- energy cells

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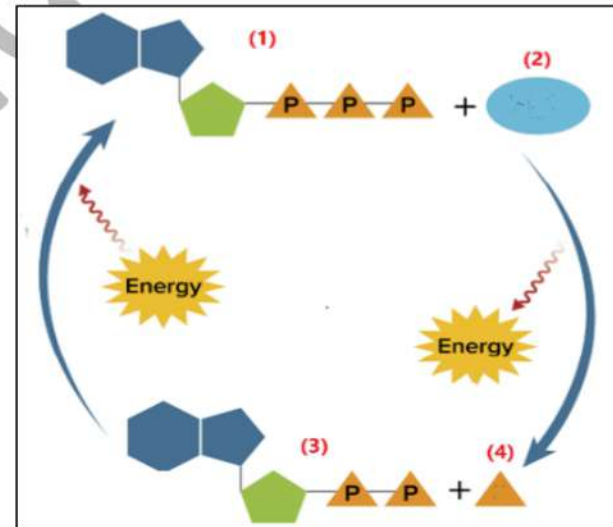


17- In living organisms, chemical energy is stored in biological molecules and can be converted to other forms of energy when needed as shown in the figure. Which of the following represents number (3)?

- A- ADP
- B- ATP
- C- NADP
- D- NADPH₂

18- In living organisms, chemical energy is stored in biological molecules and can be converted to other forms of energy when needed as shown in the figure. Which number of the following indicates the most abundant energy carrier molecule in cells?

- A- 1
- B- 2
- C- 3
- D- 4



19- Which of the following can be compared to a battery in need of recharging?

- A- ADP
- B- ATP
- C- Ribose
- D- Adenosine

20- Which of the following results in the storage of energy in terms of the ATP/ADP cycle?

- A- The breaking of the bond between the 5-carbon sugar and the 1st phosphate group
- B- The addition a phosphate group
- C- The removal of a phosphate group
- D- The addition of the glucose

Photosynthesis

phase 1: Light-dependent reactions (location : **Thylakoids**)

Light Energy is absorbed and then converted into chemical energy (storage) in the form of ATP and NADPH

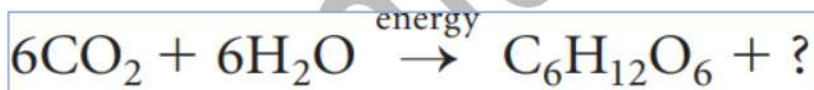
phase 2: Light -independent reactions (location : **Stroma**)

ATP and NADPH that were formed in phase 1 are used to make glucose



21- What waste product of photosynthesis released to the environment?

- A- Carbon dioxide B- Water
C- Oxygen D- ammonia



22- Which energy transformation can occur in Photosynthesis?

- A- chemical energy into mechanical energy. B- electrical energy into thermal energy.
C- light energy into chemical energy. D- mechanical energy into thermal energy

23- What are the products of photosynthesis?

- A- Water and carbon dioxide B- Oxygen and glucose
C- oxygen and carbon dioxide D- Oxygen and water

24- What is the compound the plants use to absorb the energy from light?

- A- Carbon dioxide B- H₂O
C- Nitrogen D- Chlorophyll

25- Which of the following is correct about light-dependent reactions?

- A- chemical energy converted into Light Energy in the form of ATP and NADPH
B- Light Energy converted into chemical energy in the form of ATP and NADPH
C- ATP and NADPH are used to make glucose
D- glucose used to form of ATP and NADPH

26- What three things do plants need for the process of photosynthesis?

- A- Sunlight, oxygen, and water
B- Water, soil, and oxygen
C- Sunlight, carbon dioxide, and water
D- Sunlight, soil, and water

48- What is the name of the chemical where the energy is stored during the first phase of photosynthesis?

A- ATP and NADPH

B- Glucose and ATP

C- Oxygen and Glucose

D- Chlorophyll

49- What is the main purpose of the light reaction?

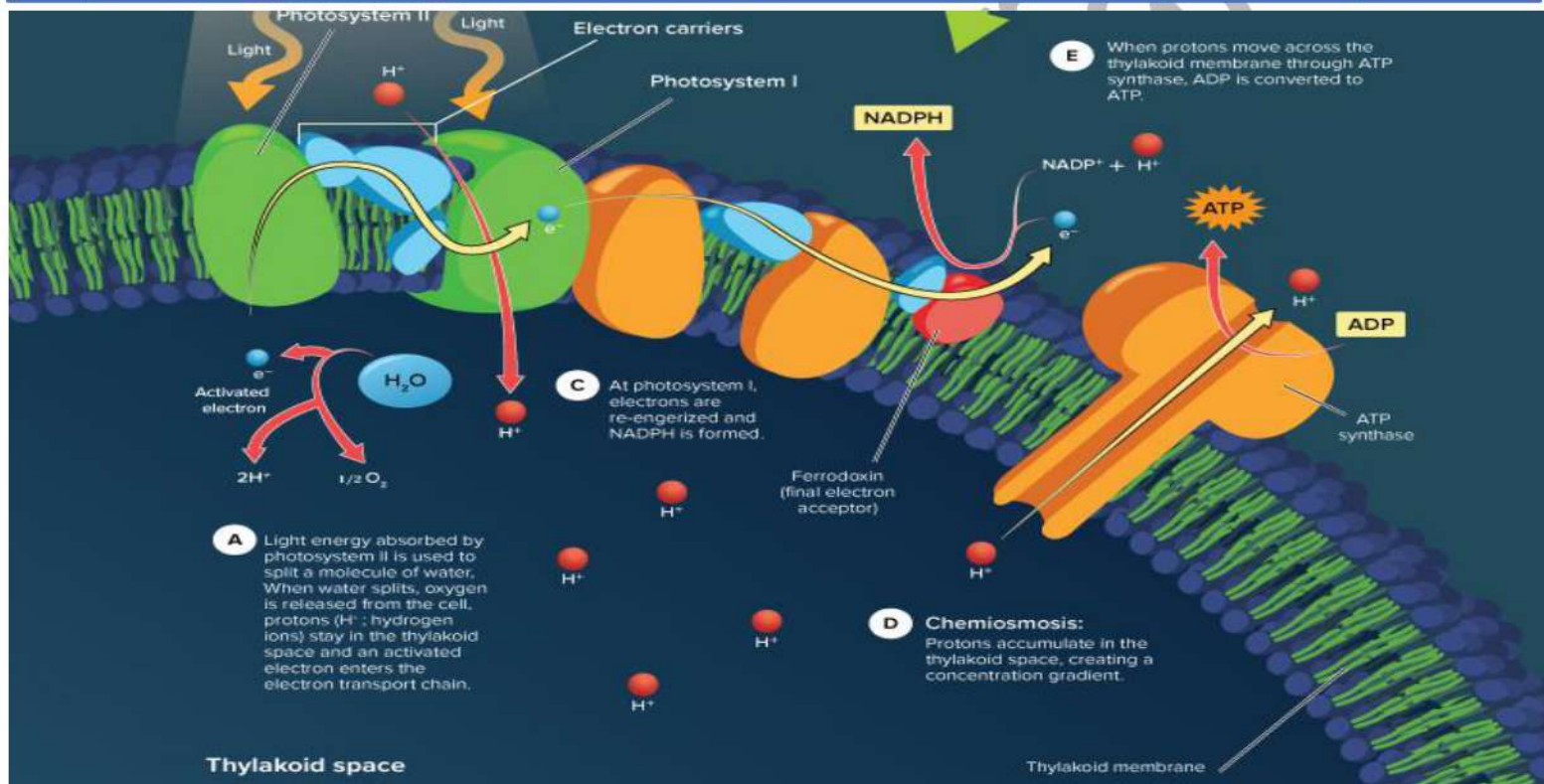
A- To provide the energy and electrons for the Calvin cycle.

B- To capture energy and make sugar.

C- To reflect green light.

D- To make sugars.

8	BIO.3.1.02.027 Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy	U2M8L2	Figure 8	page 186
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50- The figure below shows the electron transport in the light reaction of the photosynthesis. Which of the following statements is false?

a- E letter in the image refers to the ATP synthase enzyme.

b- B letter in the image refers to the electron carrier.

c- C letter in the image refers to the Photosystem II.

d- D letter in the image refers to the Ferredoxin.

51- The figure below shows the electron transport in the light reaction of the photosynthesis. Which letter of the following refers to the Ferredoxin protein?

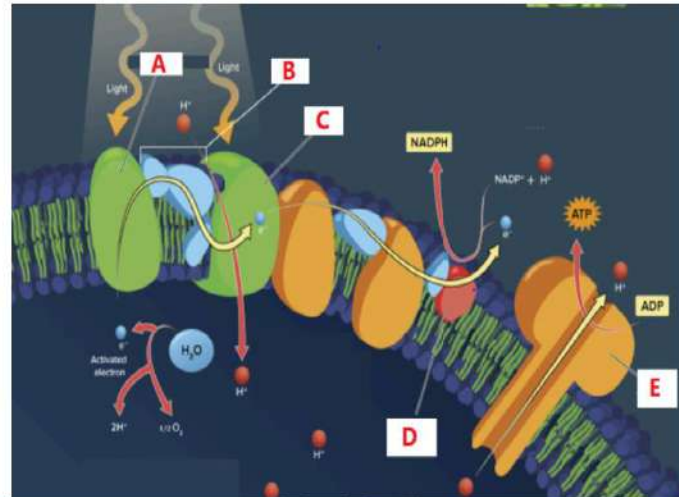
- A B C D

52- Which letter of the following refers to the ATP synthases?

- A C D E

53- Which letter of the following refers to the photosystem II?

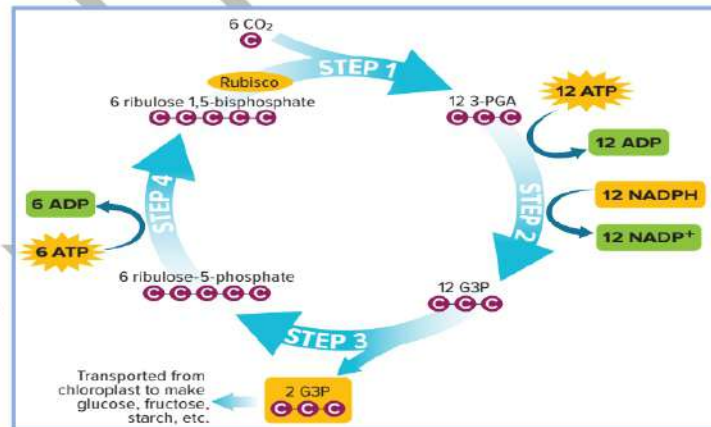
- A B C D



9	BIO.3.1.02.024 Explain that the hydrocarbon backbones of the sugars formed during photosynthesis are used to make amino acids and other carbon-based molecules that can be assembled into larger molecules used, for example, to form new cells	U2M8L2	page 187
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54- The figure show Calvin cycle. Why do plants cells undergo the second phase of photosynthesis?

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- A- Because it needs to produce more NADH.
- B- Because it needs to produce more ATP.
- C- Because it needs to produce more NADPH2.
- D- Because it needs to store the chemical energy in a more stable organic molecules.

55- Taking CO₂ from the atmosphere and turning it into glucose is called:

(The first step of the Calvin cycle is called:)

- A- Carbon fixation
- B- Cellular respiration
- C- Catabolic reaction
- D- mitosis

56- When carbon first enters the Calvin Cycle, what molecule does it combine with?

- A- PGA
- B- G3P
- C- RuBP
- D- ATP

57- Where does the Calvin Cycle occur?

- A- thylakoid
- B- Stroma
- C- Lumen
- D- mitochondria

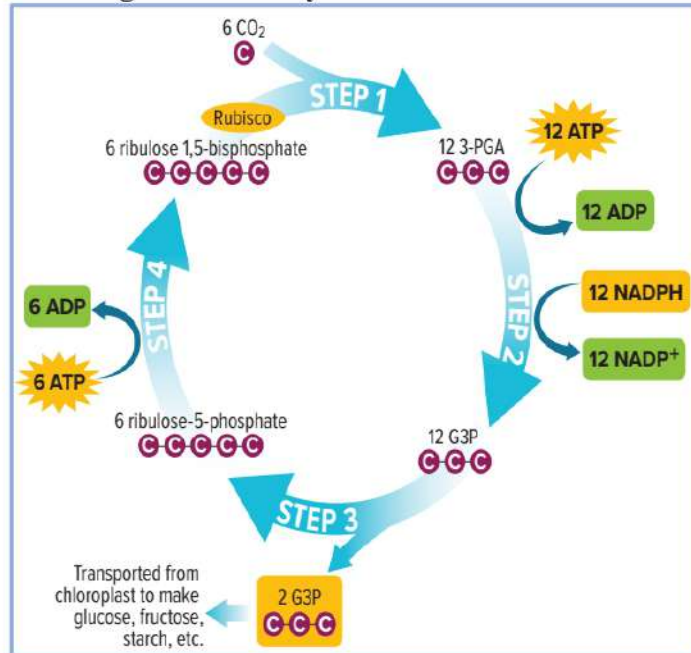


58- Which supplies energy used to synthesize carbohydrates during the Calvin cycle?

- A- CO₂ and ATP
- B- NADPH and H₂O
- C- NADPH and ATP
- D- H₂O and O₂

59- Which of the following is NOT a reactant of the Calvin Cycle?

- A- NADPH
- B- ATP
- C- Oxygen
- D- Carbon dioxide



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60- Which product of the Calvin cycle is used to produce glucose and other organic compounds?

- A- ADP
- B- CO₂
- C- G3P
- D- NADP⁺

61- How many carbons does Glyceraldehyde 3 phosphate (G3P) have?

- A- 1
- B- 2
- C- 3
- D- 6

62- What is the name of the enzyme that fixes carbon in photosynthesis?

- A- Rubisco
- B- NADPH reductase
- C- Carbon Fixase
- D- Calvinse

63- Which molecule is produced in the final step of the Calvin Cycle?

- A- (Acetyl-CoA)
- B- carbon dioxide (CO₂)
- C- Ribulose 1, 5- bisphosphates (RuBP)
- D- Glyceraldehyde 3 phosphate (G3P)

64- At the end of the Calvin cycle, where is energy stored?

- A- NADPH
- B- ATP
- C- Chloroplast
- C- Glucose

65- Which step occurs during the Calvin cycle?

- A- formation of ATP
- B- formation of six-carbon sugars
- C- release of oxygen gas
- D- release of oxygen gas

66- Which letter of the following refers to the compound that will be transported from chloroplast to make glucose, fructose, and starches?

- A B
C D

67- What is the name of the process indicated by the letter A?

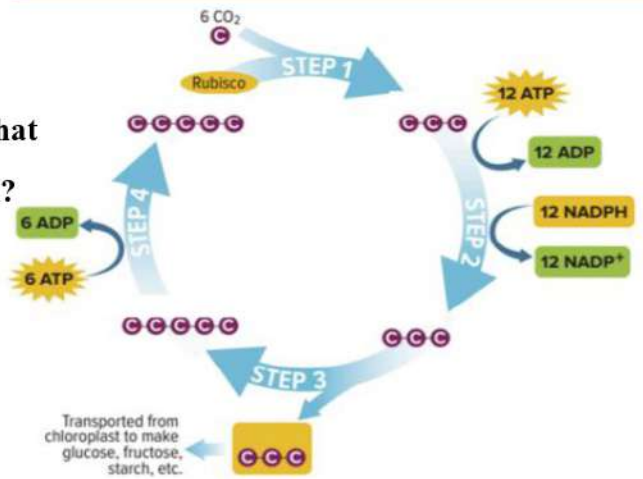
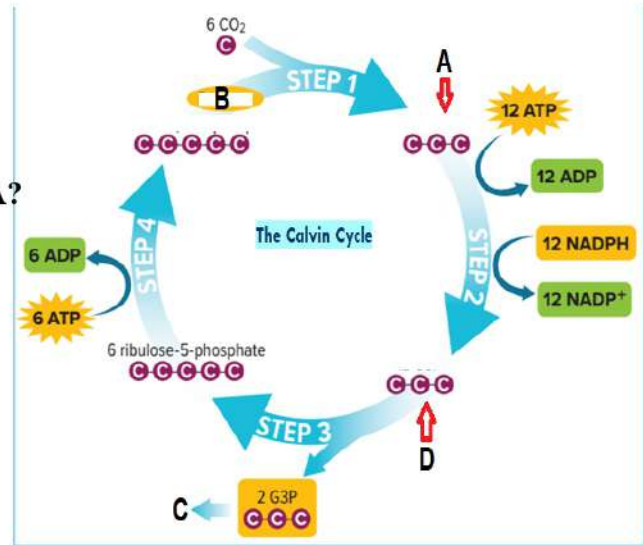
- A- Carbon fixation
B- Glycolysis
C- Catabolic reaction
D- Electron transport chain

68- Which letter of the following refers to rubisco enzyme?

- A B C D

69- Which of the following is the right order for molecules that are produced in the Calvin cycle starting from CO₂ fixation?

- A- 3-phosphoglycerate (3-PGA), Ribulose 1,5-bisphosphates (RuBP), glyceraldehyde 3-phosphate(G3P)
B- Glyceraldehyde 3-phosphate(G3P), Ribulose 1,5-bisphosphates (RuBP), 3- phosphoglycerate (3-PGA).
C- Ribulose 1,5-bisphosphates (RuBP), 3- phosphoglycerate (3-PGA), glyceraldehyde 3-phosphate(G3P).
D- 3- phosphoglycerate (3-PGA), glyceraldehyde 3-phosphate(G3P), Ribulose 1,5-bisphosphates (RuBP)



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10	BIO.3.1.02.027 Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy	U2M8L2	page 188
11	BIO.3.1.02.027 Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy	U2M8L2	page 188

Pathway: C4 pathway hot, dry conditions	Pathway: CAM pathway Deserts and salt marshes
Description: carbon dioxide fixed in 4-carbon instead of 3-carbon compounds stomata closed during hot days.	Description: carbon dioxide enters leaves only at night At night, CO ₂ fix into organic compounds
Plants that use this pathway: sugar cane and corn	Plants that use this pathway: cacti, orchids, and pineapple

70- How can environmental factors such as light intensity and carbon dioxide levels affect rates of photosynthesis?

- A- Increased light and CO₂ increase photosynthesis rates.
- B- Increased light and CO₂ decreased photosynthesis rates.
- C- Only Increased light leads to increase photosynthesis rates.
- D- Only Increased CO₂ leads to increase photosynthesis rates.

71- Which of the following is the habitat for the pineapple, cactus and orchids and other plants that use the same way to store energy?

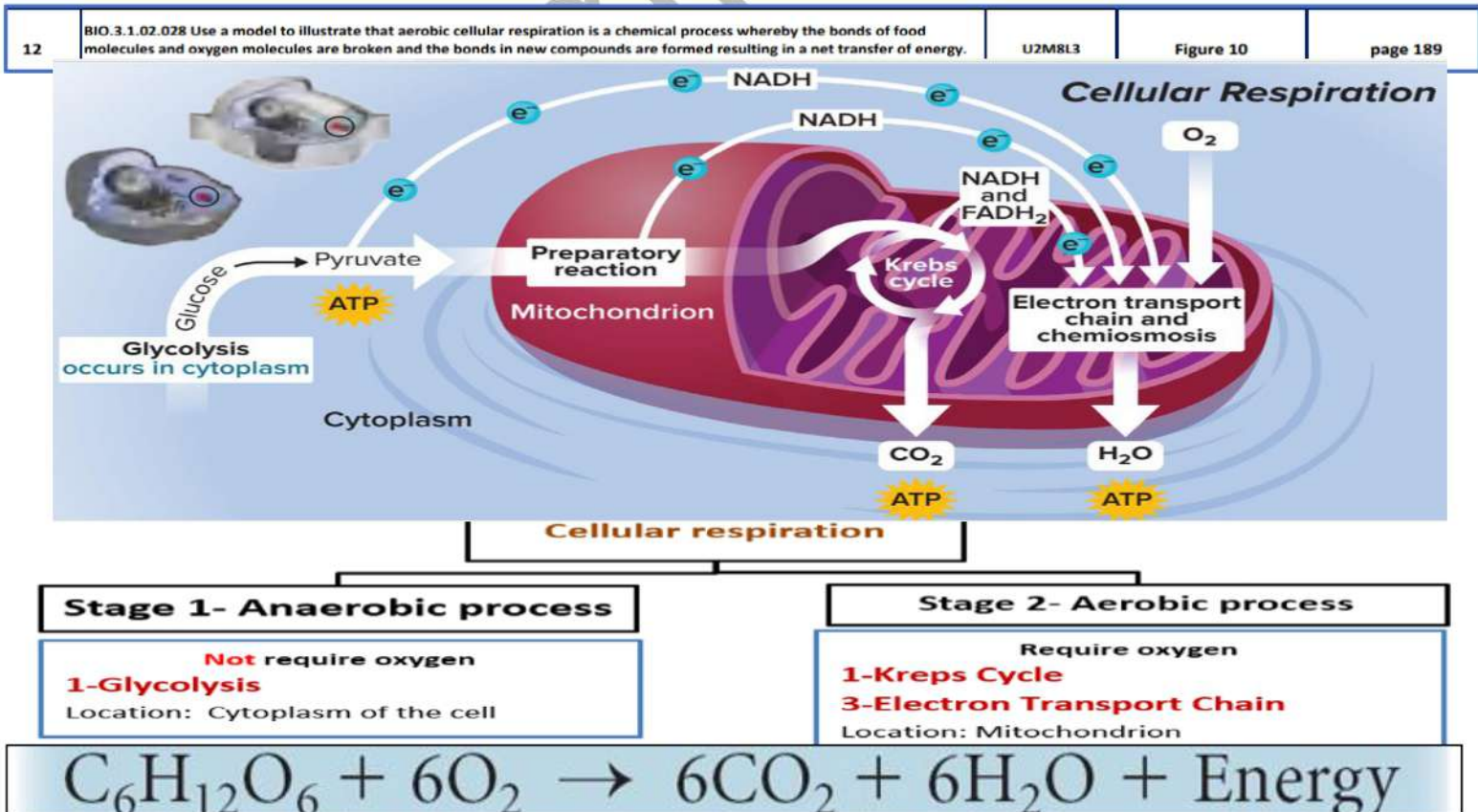
- A- Deserts and salt marshes
- B- Forests and shallow
- C- Deserts and rain forests
- D- Temperate environment and shallow water

72- Which of the following adaptive pathways helps plants maintain photosynthesis while minimizing water?

- a- C₃ plants
- b- CAM plants
- c- PGA plants
- d- C₂ Plants.

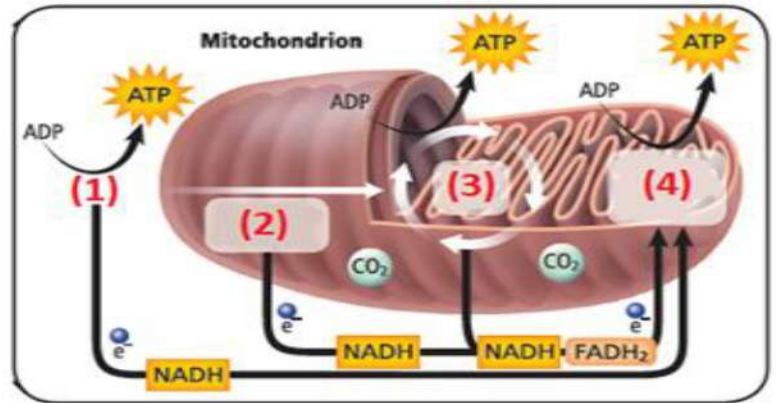
73- How are the C₄ pathway and the CAM pathway an adaptive strategy for some plants?

- a- They accelerate photosynthesis.
- b- They release more oxygen.
- c- They help the plant conserve water.
- d- They reduce the requirement for ATP.



1- The figure below shows cellular respiration. Which number of the following refers to the process of the electron transport chain?

- a- 1 b-2
c- 3 d- 4



2- Which is NOT a stage of cellular respiration?

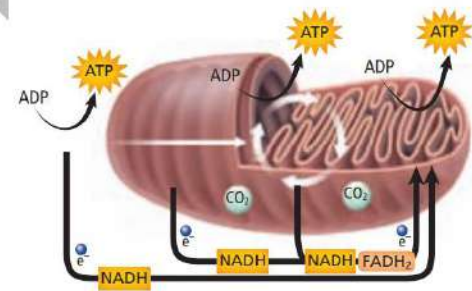
- A- glycolysis B- Krebs cycle
C- electron transport chain D- lactic acid formation

3- is considered an anaerobic process in the cellular respiration illustrated below?

- A- Kreps Cycle B- Glycolysis
C- chemiosmosis D- Electron Transport Chain

4- Which stages of cellular respiration is the aerobic process?

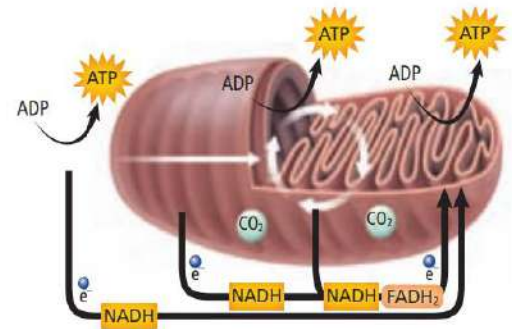
- A- Kreps Cycle and Electron Transport
B- Glycolysis and Electron Transport
C- chemiosmosis and Kreps Cycle
D- Kreps Cycle and Glycolysis



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5- Which organelle is illustrated in the figure?

- A- golgi apparatus B- mitochondria
C- nucleus D- endoplasmic reticulum



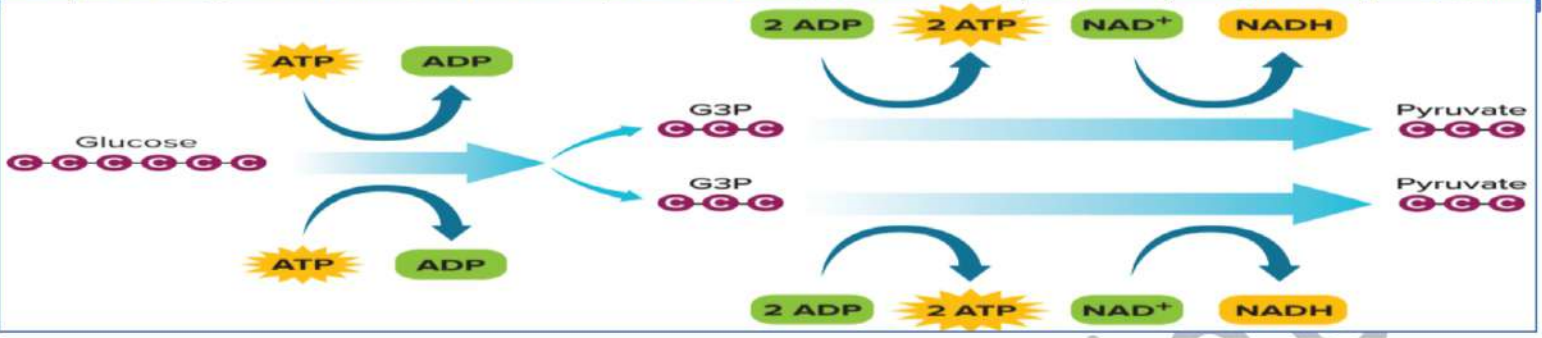
6- Which process does not occur in the organelle illustrated?

- A- glycolysis B- Krebs cycle
C- conversion of pyruvate to acetyl CoA D- electron transport

7- Which represents the general sequence of cellular respiration?

- A- TCA cycle → chemiosmosis → glycolysis
B- glycolysis → Krebs cycle → electron transport
C- electron absorption → catalysis → phosphorylation
D- aerobic pathway → anaerobic pathway → fermentation

13	BIO.3.1.02.028 Use a model to illustrate that aerobic cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.	U2M8L3	Figure 11	page 190
14	BIO.3.1.02.028 Use a model to illustrate that aerobic cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.	U2M8L3	Figure 11	page 190



8- Where do the glycolysis reactions occur?

- A- Cytoplasm
- B- Stroma
- C- Chloroplast
- D- Mitochondria

9- In Which molecule is most the energy of glucose stored at the end of glycolysis?

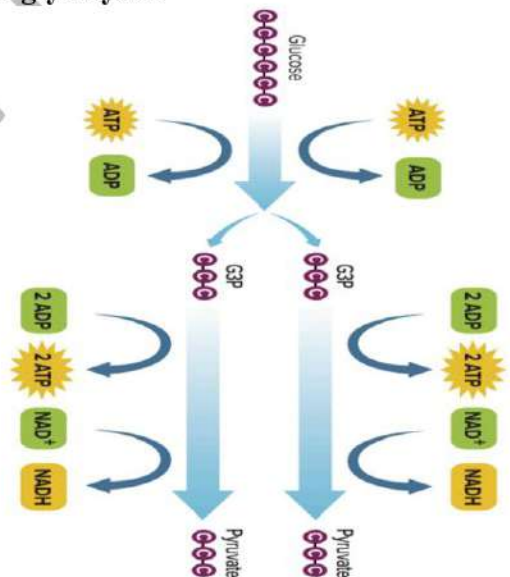
- A- Pyruvate
- B- acetyl COA
- C- ATP
- D- NADH

10- How many net yield ATP molecules are produced by Glycolysis?

- 3
- 4
- 2
- 8

11- Which of the following is true regarding the results of the glycolysis process shown in the figure below

- A- Two ATP and two pyruvate molecules.
- B- Three ATP and four pyruvate molecules.
- C- Four ATP and three pyruvate molecules.
- D- Two ATP and three pyruvate molecules

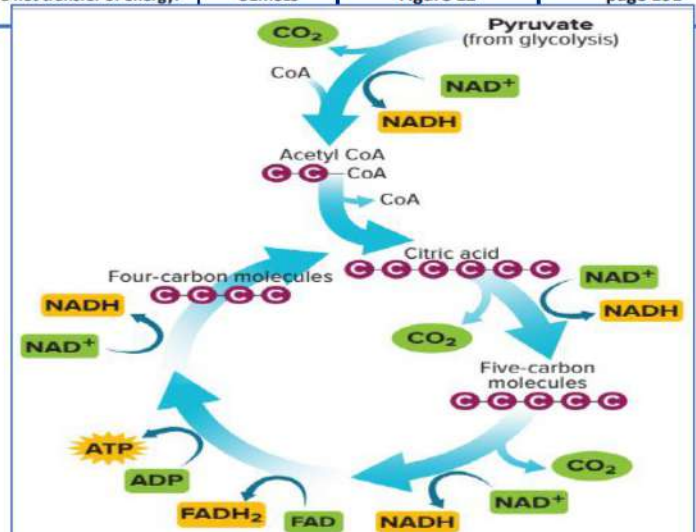


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15	BIO.3.1.02.028 Use a model to illustrate that aerobic cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.	U2M8L3	Figure 12	page 191
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12- Which occurs during the Krebs cycle (TCA) cycle) (citric acid cycle)?

- A- breaking down pyruvate
- B- breaking down pyruvate
- C- creating glucose
- D- producing ethyl alcohol



13- When pyruvate acid is converted to 2-carbon intermediate molecule called acetyl CoA it produces.....

- A- ATP + NADH
B- CO₂ + NADH
C- FADH₂ + CO₂
D- FADH₂ + ATP

14- Which molecule generated by the Krebs cycle is a waste product?

- A- CoA
B- CO₂
C- FADH₂
D- NADH

15- During the Krebs cycle, pyruvate is broken down into what compound?

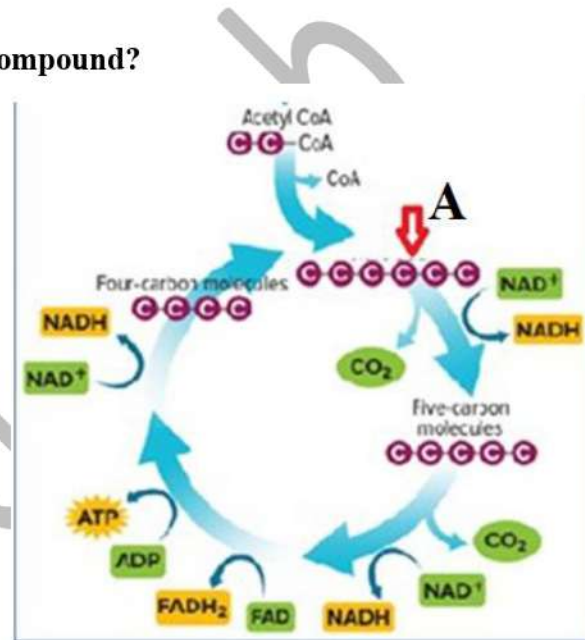
- A- H₂O
B- O₂
C- CO
D- CO₂

16- What is the first compound formed in the Krebs cycle?

- A- 4-Carbon compound
B- citric acid
C- Acetyl CoA
D- Glucose

17- Which of the following does the letter(A) indicate?

- A- Pyruvate
B- Citric acid
C- Acetaldehyde
D- Lactic acid

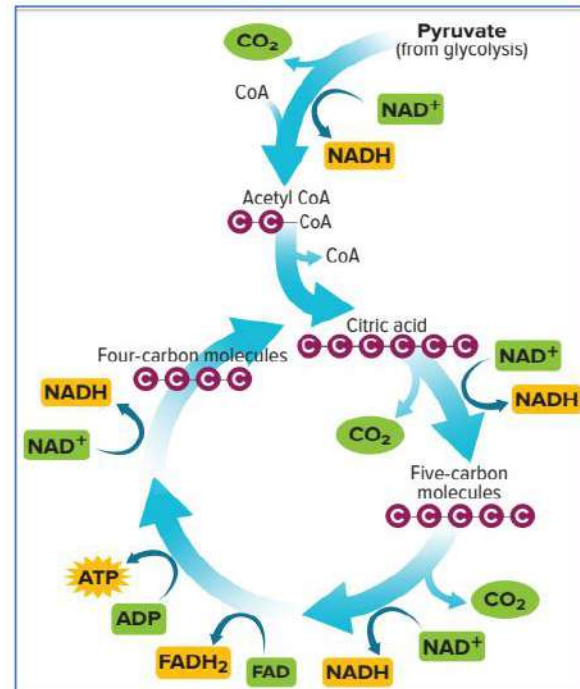


18- How many NADH molecules are produced from the breakdown of one pyruvate molecule by the end of Krebs cycle?

- A- 1
B- 2
C- 4
D- 5

19- How many FADH₂ molecules are produced from the breakdown of one pyruvate molecule by the end of Krebs cycle?

- A- 1
B- 2
C- 4
D- 5



25- How many ATP molecules are produced from NADH molecules released from the breakdown of one pyruvate molecules?

- A- 3 B- 6
C- 8 D- 12

26- The figure below shows The Krebs cycle and the preparatory reaction. Study it and answer the question:

In the electron transport chain, how many ATP molecules are produced from all NADH molecules that are released upon breakage of one glucose molecule?

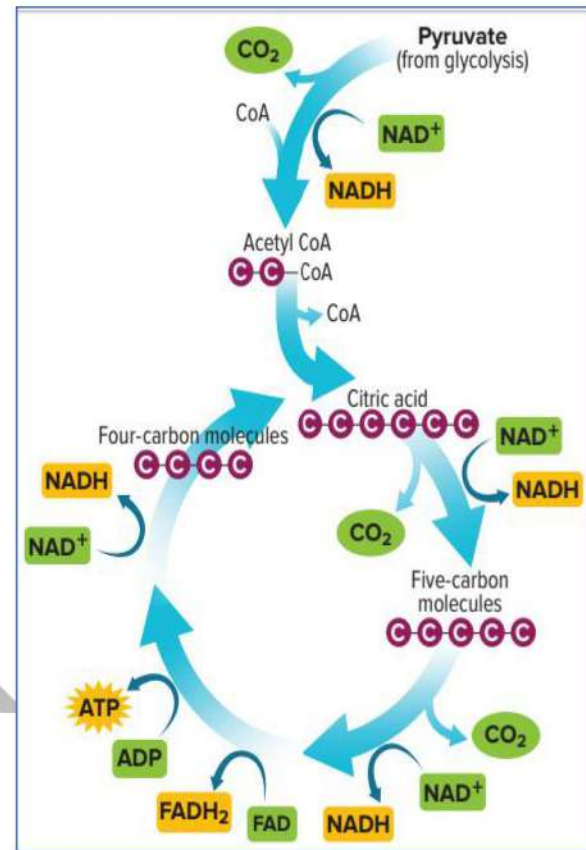
- A- 30 B- 18
C- 12 D- 21

27- The figure below shows The Krebs cycle and the preparatory reaction. Study it and answer the question:

In the electron transport chain, how many ATP molecules are produced from all NADH molecules that are released upon breakage of one Pyruvate molecule?

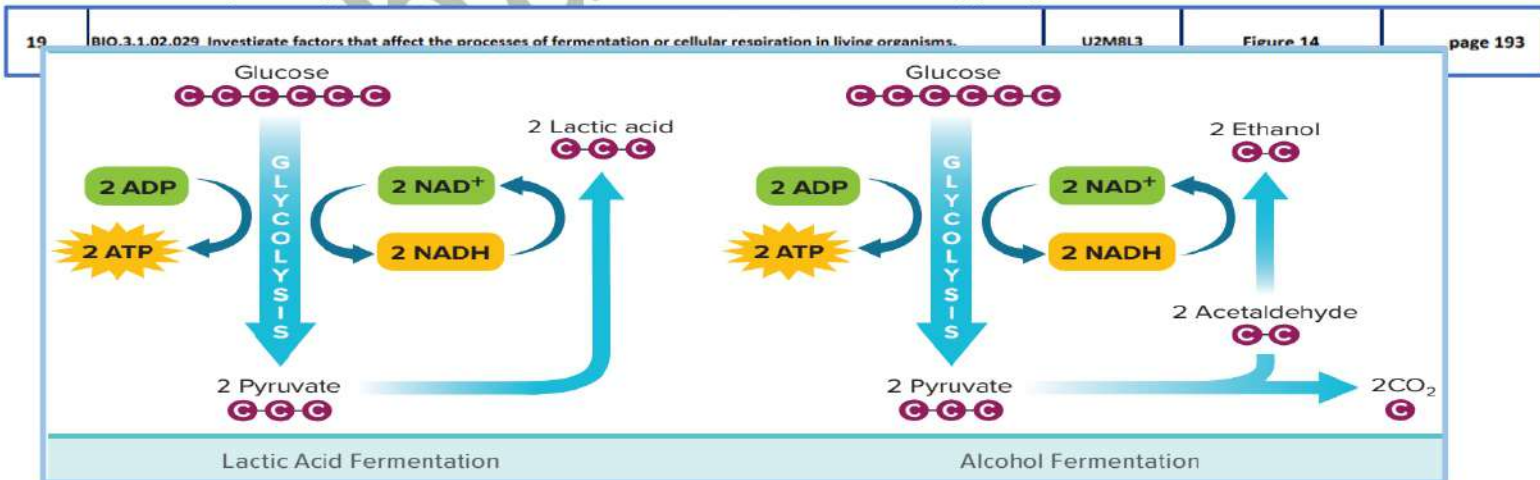
- A- 30 B- 18
C- 12 D- 21

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28 - One molecule of glucose yields 38 ATP in cellular respiration in prokaryotes because.....

- A- prokaryotes do not have mitochondria.
B- prokaryotes do not have a nuclear membrane.
C- prokaryotes are small.
D- prokaryotes use the cell membrane as the location of glycolysis.



29- Where does Fermentation take place?

- A- Chloroplasts B- mitochondria
C- Cytoplasm D- plasma membrane

30- How are lactic acid and alcoholic fermentation similar?

- A- They have the same products
- B- They have the same reactants.
- C- They both require oxygen
- D- They occur in the same organisms

31- What is the purpose of fermentation?

- A- Supply of NAD^+
- B- produces ATP
- C- Released O_2
- D- Glucose

32- What prevents pyruvate from entering the Krebs cycle and instead results in this pathway?

- A- a buildup of CO_2
- B- a lack of oxygen
- C- an excess of glucose
- D- an increased demand for ATP

33- Which of the following would cause muscle Fatigue (feel sore) in the body during strenuous exercise?

- a- Metabolizing oxygen aerobically
- b- Excess ATP created in muscle cells
- b- Decrease of fermentation energy
- d- Buildup of lactic acid in muscles

34- The graph represents the process of Lactic Acid fermentation, which of the following refers to the letter (A) in the illustration?

- A- lactic Acid
- B- Ethanol
- C- Acetyl CO-A
- D- Citric acid

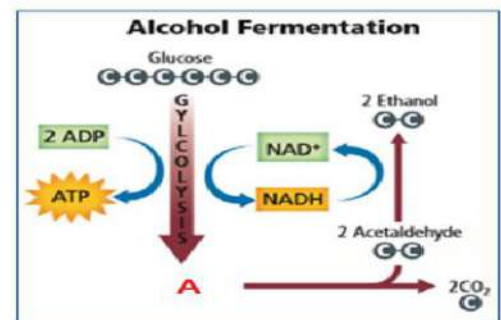
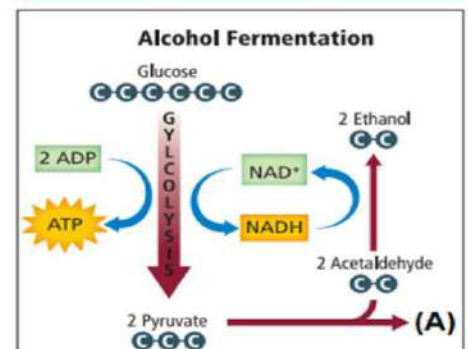
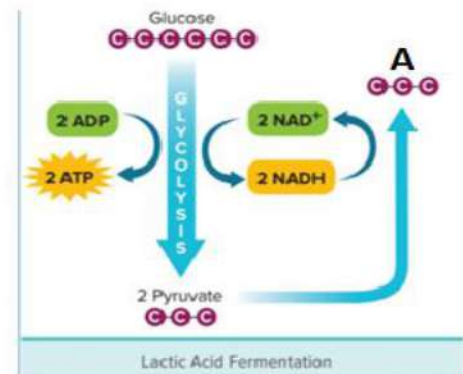
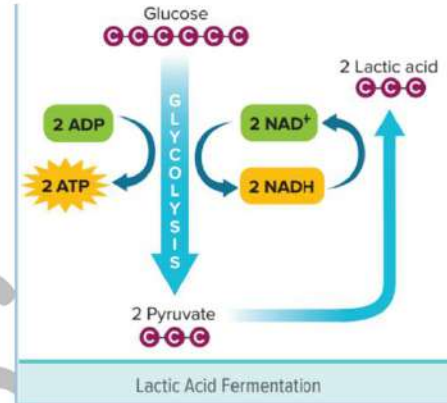
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35- Which of the following refers to the letter (A) in the illustration below?

- A- One CO_2
- B- Two CO_2
- C- Three CO_2
- D- Four CO_2

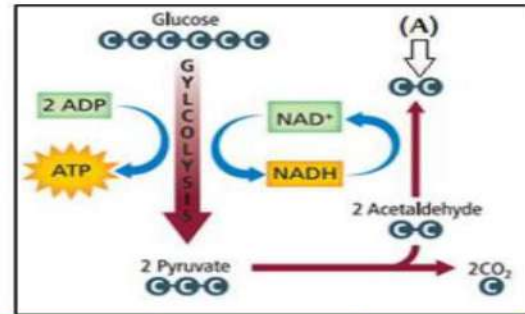
36- Which of the following refers to the letter (A) in the illustration below?

- A- 1 pyruvate
- B- 2 pyruvate
- C- 3 pyruvate
- D- 4 pyruvate



37- The graph represents the process of alcohol fermentation, which of the following refers to the letter (A) in the illustration?

- A- lactic Acid
- B- Ethanol
- C- Acetyl CO-A
- D- Citric acid



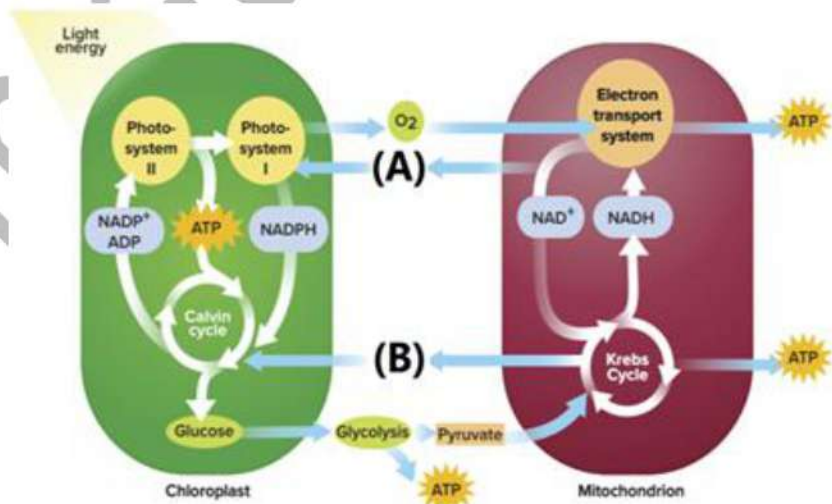
20	BIO.3.4.01.028 Describe the complementary processes of cellular respiration and photosynthesis with respect to the flow of energy and the cycling of matter within ecosystems, and explain how human activities can disrupt the balance achieved by these processes	U2M8L3	Figure 15	page 194
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38- Which of the following best identifies the relationship between the processes of photosynthesis and cellular respiration?

- a- Both processes generate energy for cell use.
- b- Both processes release energy for cell use.
- c- The products of one process are used reactants by the other process.
- d- The reactants of one process are also reactants of the other process.

39- Photosynthesis and cellular respiration are two important processes that cells use to obtain energy. Which of the following refers to the letters (A) and (B) in the figure below?

- a- (A) H₂O and (B) CO₂
- b- (A) CO₂ and (B) O₂
- c- (A) H₂O and (B) SO₂
- d- (A) H₂ and (B) CO₂



40- Which of the following are the products of photosynthesis?

- A- Water and carbon dioxide
- B- Oxygen and glucose
- C- Oxygen and carbon dioxide
- D- Oxygen and water

41- Which of the following are the reactants of cellular respiration?

- A- Water and carbon dioxide
- B- Oxygen and glucose
- C- Oxygen and carbon dioxide
- D- Oxygen and water

With my sincere wishes for good luck and success

Teacher: Mohammad Rajab