



BIOLOGY

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RESPIRATION

Textbook Questions Answer

1. The number of ATP molecules formed by complete oxidation of one molecule of pyruvic acid is

A. 12

B. 13

C. 14

D. 15

Answer: A



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2. During oxidation of two molecules of cytosolic $\text{NADH} + \text{H}^+$, number of ATP molecules produced in plants are

A. 3

B. 4

C. 6

D. 8

Answer: C



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3. The compound which links glycolysis and Krebs' cycle is

A. succinic acid

B. pyruvic acid

C. acetyl CoA

D. citric acid

Answer: C



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4. Assertion (A) : Oxidative phosphorylation takes place during the electron transport chain in mitochondria.

Reason (R) : Succinyl CoA is phosphorylated into succinic acid by substrate phosphorylation.

A. A and R is correct. R is correct explanaton of A

B. A and R is correct but R is not the correct explanation of A

C. A is correct but R is wrong

D. A and R is wrong.

Answer: A





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5. Which of the following reaction is not involved in Krebs cycle.

A. Shifting of phosphate from 3C of 2C

B. Splitting of Fructose 1,6 bisphosphate of
into two molecules 3C compounds.

C. Dephosphorylation from the substrates

D. All of these

Answer: D



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6. What are enzymes involved in phosphorylation and dephosphorylation reaction in EMP pathway ?



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7. Respiratory quotient is zero in succulent plants. Why ?



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8. Explain the reactions taking place in mitochondrial inner membrane.



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9. What is the name of alternate way of glucose breakdown ? Explain the process involved in it.



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10. How will you calculate net products of one sucrose molecule upon complete oxidation during aerobic respiration as per recent view ?



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Other Important Questions Answer Choose The Correct Answer

1. The term respiration was coined by _____

A. Lamark

B. Kerb

C. Pepys

D. Blackman

Answer: C



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2. In floating respiration the substrates are:

A. carbohydrate or protein

B. carbohydrate or fat

C. protein of fat

D. none of the above

Answer: B



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3. The discovery of ATP was made by:

A. Lipman

B. Hans Adolt

C. Warburg

D. Karl Lohman

Answer: D



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4. The end product of glycolysis is:

A. pyruvate

B. ethanol

C. malate

D. succinate

Answer: A



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5. On hydrolysis, one molecule of ATP releases energy of:

A. 8.2 K cal

B. 32.3kj

C. 7.3 K cal

D. 7.8 K cal

Answer: C



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6. Which of the following is known as terminal oxidation:

A. glycolysis

B. electron transport chain

C. kreb's cycle

D. pyruvate oxidation

Answer: B



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7. Identify the link reaction:

A. conversion of glucose into pyruvic acid

B. conversion of glucose into ethanol

C. conversion of acetyl CoA into CO_2 and
water

D. conversion of pyruvic acid into acetyl
coenzyme-A

Answer: D



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8. Who was awarded Nobel prize in 1953 for the discovery of TCA cycle?

A. Lipmann

B. Hans Adolf Krebs

C. Peternrmitchell

D. Dickens

Answer: B



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9. Kreb's cycle isin nature.

A. catebolic pathway

B. anabolic pathaway

C. amphibolic pathway

D. hydrolytic pathway

Answer: C



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10. Electron transport system during aerobic respiration takes place in:

A. cytoplasm

B. mitochondria

C. chloroplast

D. golgi appartus

Answer: B



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11. The oxidation of one molecule of $NADH + H^+$ gives rise to:

A. 2 ATP

B. 3 ATP

C. 4 ATP

D. 2.5 ATP

Answer: B



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12. In aerobic prokaryotes, one glucose molecule producesATP molecules.

A. 36 ATP

B. 32 ATP

C. 34 ATP

D. 38 ATP

Answer: D



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13. Cyanide acts as electron transport chain inhibitor by prebenting:

A. synthesis of ATP from ADP

B. flow of electrons from $NADH + H^+$

C. flow of electrons from cytochrome a_3 to



D. oxidative phosphorylation

Answer: C



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14. Respiratory quotient for oleic acid is:

A. 0.69

B. 0.71

C. 0.8

D. 0.36

Answer: B



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15. End products of fermentation in yeast is:

A. pyruvic acid and CO_2

B. lactic acid and CO_2

C. ethyl alcohol and CO_2

D. mixed acid and CO_2

Answer: C



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16. The end products of mixed acid fermentation in enterobacteriaceae are:

A. lactic acid, ethanol, acid CO_2 and H_2

B. lactic acid, formic acid and CO_2

C. lactic acid, ethanol, CO_2 and O_2

D. ethanol, formic acid, CO_2 and H_2

Answer: A



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17. The external factors that affect the respiration are:

A. temperature, insufficient O_2 and amount of protoplasm

B. temperature, insufficient O_2 and high concentration of CO_2

C. temperature, high concentration of CO_2 and respiratory substrate

D. temperature, high concentration of CO_2 and amount of protoplasm

Answer: B



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18. Pentose phosphate pathway was described by

A. Pepys and black man

B. Krebs and Embden

C. Warburg, Dickens and Lipmann

D. Warburg and Parnas

Answer: C



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19. The oxidative pentose phosphate pathway is controlled by the enzyme:

- A. glucose,1,6 diphosphate dehydrogenase
- B. glucose 6 phosphate dehydrogenase
- C. fructose-6-phosphate dehydrogenase
- D. none of the above

Answer: B



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20. In pentose phosphate pathway the glucose-6-phosphate dehydrogenase enzyme is inhibited high ratio of:

A. FADH to FAD

B. glucose to glucose-6-phosphate

C. NADPH to NADP

D. GTPH to GTP

Answer: C



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21. Erythrose is used for synthesis of

A. Erythromycin

B. Xanthophyll

C. Erythrocin

D. Anthocyanin

Answer: D



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22. as per the recent view, when a glucose molecule is completely aerobically oxidised, the net yield of ATP in plant cell is:

A. 38

B. 36

C. 30

D. 32

Answer: C



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23. Identify the electron transport inhibitor:

A. phosphophenol

B. dinitrophenol

C. xylene

D. indol acetic acid

Answer: B



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24. The phenomenon of climacteric is present in:

A. banana

B. coconut

C. cauli flower

D. brinjal

Answer: A



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25. Cyanide resistant respiration is known to generate heat in thermogenic tissues as high as:

A. $35^{\circ} C$

B. $38^{\circ} C$

C. $40^{\circ} C$

D. $51^{\circ} C$

Answer: D



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26. Match the following:

Substrate	R.Q
A. Palmitic acid	(i) 1.6
B. Oleic acid	(ii) 4.0
C. Tartaric acid	(iii) 0.36
D. Oxalic acid	(iv) 0.71

A. A-(ii),B-(iii),C-(1),D-(iv)

B. A-(iii),B-(1),C-(iv),D-(ii)

C. A-(ii),B-(iv),C-(i),D-(iii)

D. A(iii),B(i),C(iv),D(ii)

Answer: B



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27. Indicate the correct statement:

A. In Brycophyllum, carbohydrates are partially oxidised to organic acid

B. In opuntia, the Respiratory Quotient value is 0.5

C. Alcoholic fermentation takes place in enterobacteriaceae

D. Muscles of vertebrate does not have
lactate dehydrogenase enzyme

Answer: A



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28. The order of aerobic respiration in plant cell is:

A. glycolysis, Kreb's cycle, pyruvate
oxidation and electron transport chain

B. glycolysis, pyruvate oxidate, Kreb's cycle,
electron transport chain

C. pyruvate oxidate, glycolysis, Kreb's cycle,
electron transport chain

D. none of the above order

Answer: B



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29. The complete reactions of glycolysis take place in:

A. mitochondria

B. cristae

C. cytoplasm

D. outer membrane of mitochondria

Answer: C



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30. The co-enzyme quinone is a proton carrier located within:

- A. outer membrane of mitochondria
- B. cytoplasm
- C. inner membrane of mitochondria
- D. matrix of mitochondria

Answer: C



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31. how many molecules of CO_2 produced during link reaction?

A. 1

B. 6

C. 4

D. 2

Answer: D



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32. In the case of ground nut, during seed germination they use:

- A. carbohydrate as respiratory substrate
- B. fat alone as respiratory substrate
- C. fat and protein as respiratory substrate
- D. protein alone as respiratory substrate

Answer: C



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33. Lactic acid fermentation takes place in:

A. yeast

B. bacillus

C. enterobacteriaceae

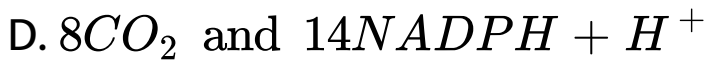
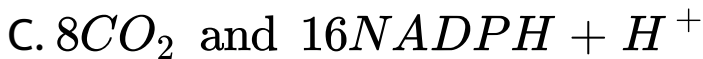
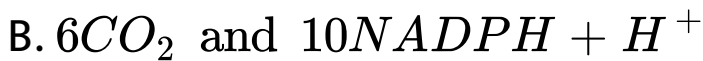
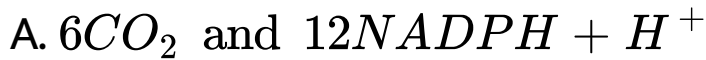
D. none of the above

Answer: B



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34. The net result of complete oxidation of one glucose-6-phosphate in pentose phosphate pathway yield:



Answer: A



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35. Ribose-5-phosphate and its derivatives are used in the synthesis of:

A. lignin

B. coenzyme A

C. anthocyanin

D. xanthophyll

Answer: B



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Other Important Questions Answer Answer The Following

1. Define respiration



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2. What is protoplasmic respiration.



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3. What do you understand by compensation of point?



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4. Define the Aerobic respiration



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5. What is anaerobic respiration?



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6. What do you know about transition reaction?



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7. Who is sir Hans Adolf Krebs?



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8. Write about amphibolic pathway.



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9. Mention the role of NADH dehydrogenase enzyme in electron transport system.



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10. What is oxidative phosphorylation ?



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11. Give examples of electron transport chain inhibitors .



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12. What is respiratory quotient?



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13. What is the significance of respiratory quotient ?



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14. What is alcoholic fermentation.



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15. What are the industrial used of alcoholic fermentation ?



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16. What do you understand by the term mixed acid fermentation?



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17. Mention any two internal factors, that affect the rate of respiration in plants.



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18. What is the control mechanism of pentose phosphate pathway?



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19. Write any two significances of Pentose Phosphate Pathway.



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20. In bioaphere how do plants and animals are complementary systems, which are integrated to sustain life?



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21. What will happen, when you sleep under a tree during night time?



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22. The factors associated with compensation point are



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23. Why do you call ATP as universal energy currency of cell?



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24. What are redox reactions ?



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25. Distinguish between Aerobic and Anerobic respiration .



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26. What is the significance of Kreb's cycle ?



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27. Derive the respiratory quotient for carbohydrate as substrate in oxidative metabolism.



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28. What are the characteristics of anaerobic respiration ?



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29. Differentiate Glycolysis and fermentation.



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30. Write down any three external factors, that affect respiration in plants.



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31. How are alcoholic beverages made ?



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32. Give the schematic representation of glycolysis EMP pathway.



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33. Define Kreb's cycle.



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34. Mention the schematic diagram of the various steps involved in pentose phosphate pathway.



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35. What is electron transport chain?



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36. What is respiratory quotient?



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37. Explain experiment to demonstrate the production of CO_2 in aerobic respiration.



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1. How many ATP molecules are produced from one sucrose molecule?



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1. Why do micro organisms respire anaerobically ?



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2. Does anaerobic respiration take place in higher plants?



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