BIOLOGY

BOOKS - NEET PREVIOUS YEAR (YEARWISE + CHAPTERWISE)

RESPIRATION IN PLANTS

Exercise

1. Which statement is wrong for Krebs' cycle ?

A. There are three points in the cycle where NAD^+ is reduced to $NADH + H^+$

B. There is one point in the cycle where FAD^+ is reduced to $FADH_2$

C. During conversion of succinyl Co-A to succinic acid, a molecules of GTP is synthesised

D. The cycle starts with condensation of acetyl group (acetyl Co-A) with pyruvic acid to yield citric acid

Answer: D

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2. Which of the following biomolecules is common to respiration-mediated breakdown of fats, carbohydrates and proteins

A. Glucose-6-phosphate

B. Fructose 1,6-bisphosphate

C. Pyruvic acid

D. Acetyl Co-A

Answer: D

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3. Oxidation phosphorylation is

A. formation of ATP by transfer of phosphate group from a substrate to ADP

B. oxidation of phosphate group in ATP

C. addition of phosphate group to ATP

D. formation of ATP by energy released from electrons removed during substrate oxidation

Answer: A

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4. In which one of the following processes CO_2 is not released

A. Aerobic respiration in plants

B. Aerobic respiration in animals

C. Alcoholic fermentation

D. Lactate fermentation

Answer: D

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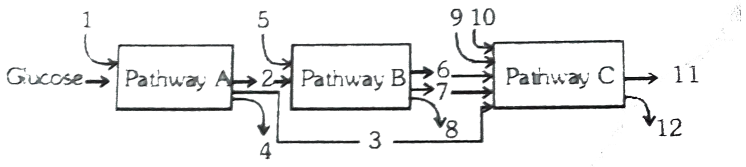
5. The three boxes in this diagram represent the three major biosynthetic pathways in aerobic respiration. Arrows represent net reactants or products.



Arrow numbered 4,8 and 12 can all be

A. NADH

B. ATP

C. H_2O

D. FAD^+ or $FADH_2$

Answer: B

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6. Which of the following biomolecules is common to respiration-mediated breakdown of fats, carbohydrates and proteins

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C. Pyruvic acid

D. Acetyl Co-A

Answer: D

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7. The energy releasing process in which the substrate is oxidised without an external acceptor is called or Lactic acid converted into alcohol in process called

A. glycolysis

B. fermentation

C. aerobic respiration

D. photorespiration

Answer: B

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8. Aerobic respiratory pathway is appropriately termed

A. catabolic

B. parabolic

C. amphibolic

D. anabolic

Answer: C

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9. the chemiosmotic coupling hypothesis of oxidative phosporylaion propass that adenosine triphoshate (ATP) is formed becouse

A. high energy bonds are formed in mitochondrial proteins

B. ADP is pumped out of the matrix into the intermembrane space

C. a proton gradient forms across the inner membrane

D. there is a change in the permeability of the inner mitochondrial membrane toward Adenosine Diphosphate (ADP)

Answer: C

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10. The overall goal of glycolysis, Krebs cycle and the electron transport system is the formation of

A. ATP in small stepwise units

B. ATP in one large oxidation reaction

C. sugars

D. nucleic acid

Answer: A

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11. All enzymes of TCA cycle are located in the mitochondrial matrix except one which is located in inner mitochondrial membranes in eukaryotes and in cytosol in prokaryotes. This enzyme is

A. lactate dehydrogenase

B. isocitrate dehydrogenase

C. malate dehydrogenase

D. succinate dehydrogenase

Answer: D

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12. How many ATP molecules could maximally be generated from one molecule of glucose, if the complete oxidation of one mole of glucose to CO_2 and H_2O yields 686 kcal and the useful chemical energy available in the high energy phosphate bond of one mole of ATP is 12 kcal

A. 30

B. 57

C. 1

D. 2

Answer: B

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13. During which stage in the complete oxidation of glucose are the greatest number of ATP molecules formed from ADP

Or

Largest amount of phosphate bond energy is produced in the process of respiration during

A. glycolysis

B. Krebs' cycle

C. conversion of pyruvic acid to acetyl Co-A

D. electron transport chain

Answer: D

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14. Chemiosmotic theory of ATP synthesis in mitochondria is based on

A. membrane potential

B. accumulation of Na^+ ions

C. accumulation of K^+ ions

D. proton gradient

Answer: D

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15. In glycolysis, during oxidation electrons are removed by

A. ATP

B. glyceraldehyde-3-phosphate

C. NAD^+

D. molecular oxygen

Answer: C

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16. In alcoholic fermentation

A. oxygen is the electron acceptor

B. triose phosphate is the electron donor while acetaldehyde is the electron acceptor

C. triose phosphate is the electron donor while pyruvic acid is the electron acceptor

D. there is no electron donor

Answer: B

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17. Which of the following concerns photophosphorylation

A.

$$AMP + \text{inorganic } PO_4 \xrightarrow{\text{Light energy}} ATP$$

B. $ADP + AMP \xrightarrow{\text{Light energy}} ATP$

C.

$$ADP + \text{inorganic } PO_4 \xrightarrow{\text{Light energy}} ATP$$

D. $ADP + \text{inorganic} PO_4 \rightarrow ATP$

Answer: C

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18. In which one of the following do the two names refer to one and the same thing

A. Tricarboxylic acid cycle and urea cycle

B. Kreb's cycle and Calvin cycle

C. Tricarboxylic acid cycle and citric acid cycle

D. Citric acid cycle and Calvin acid

Answer: C

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19. How many ATP molecules are produced by aerobic oxidation of one molecules of glucose ?

A. 2

B. 4

C. 28

D. 24

Answer: C

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20. Net gain of ATP molecules during aerobic respiration is

A. 36 molecules

B. 38 molecules

C. 40 molecules

D. 48 molecules

Answer: B

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21. The mechansim of ATP formation both in chlorophast and mitochondria is explained by

A. relay pump theory of Godlewski

B. Munch's pressure/mass flow model

C. chemiosmotic theory of Mitchell

D. Cholondy-Went's model

Answer: C

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22. FAD participates in Krebs' cycle as electron acceptor during conversion of

A. succinyl Co-A to succinic acid

B. α-ketogluarate to succinyl Co-A

C. succine acid to fumaic acid

D. furmaric acid to malic acid

Answer: C

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23. Oxidative phosphorylation involves simultaneous oxidation and phosphorylation to finally form

A. pyruvate

B. NADP

C. DPN

D. ATP

Answer: D

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24. Krebs' cycle occurs in

A. mitochondria

B. cytoplasm

C. chloroplast

D. ribosomes

Answer: A

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25. Anaerobic products of fermentation are

A. protein and acetic acid

B. alcohol , lactic acid or similar compounds

C. ethers and acetones

D. alcohol and lipoproteins

Answer: B

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26. Which of the following is essential for conversion of pyruvic acid into acetyl Co-A ?

A. LAA

B. NAD^+

C. TPP

D. All of these

Answer: D

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27. Respiratory quotient (RQ) for fatty acid is

A. > 1

B. < 1

C. 1

D. 0

Answer: B

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28. The first phase in the breakdown of glucose in animal cell is

A. Krebs' cycle

B. glycolysis

C. oxidative phosphorylation

D. ETC

Answer: B

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29. Fermentation products of Yeast are

A. $H_2O + CO_2$

B. methyl alcohol $+ CO_2$

C. methyl alcohol $+H_2O$

D. ethyl alcohol $+CO_2$

Answer: D

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30. The respiratory substrate yielding maximum number of ATP molecules among the following is

A. Ketogenic amino acids

B. glucose

C. amylose

D. glycogen

Answer: B

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31. ATP is injected in cyanide poisoning because it is

A. necessary for cellular functions

B. necessary for $Na^+ - K^+$ pump

C. $Na^+ - K^+$ pump operates at the cell membrane

D. ATP breaks down cyanide

Answer: A

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32. Maximum amount of energy/ATP is liberated on oxidation of

A. fats

B. proteins

C. starch

D. vitamins

Answer: A

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33. Life without air would be

A. reductional

B. free from oxidative damage

C. impossible

D. anaerobic

Answer: D

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34. End product of citric acid/Kreb's cycle is

A. citric acid

B. lactic acid

C. Pyruvic acid

D. $CO_2 + H_2O$

Answer: D

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35. Out of 38 ATP molecules per glucose, 30 ATP molecules are formed from $NADH/FADH_2$ in

A. respiratory chain

B. Krebs' cycle

C. oxidative decarboxylation

D. EMP

Answer: A

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36. End product of aerobic respiration are

A. sugar and oxygen

B. water and energy

C. carbon dioxide, water and energy

D. carbon dioxide and energy

Answer: C

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37. Link between glycolysis, Krebs cycle and β-oxidation of fatty acid or carbohydrate and fat metabolism is

A. oxaloacetic acid

B. succinic acid

C. citric acid

D. Acetyl Co-A

Answer: D

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38. At a temperature above $35^{\circ} C$

A. rate of photsynthesis will decline earlier than that of respiration

B. rate of respiration will decline earlier than that of photosynthesis

C. both decline simultaneously

D. there is no fixed pattern

Answer: A

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39. Oxidative phosphorylation is production of

A. ATP in photosynthesis

B. NADPH in photosynthesis

C. ATP in respiration

D. NADH in respiration

Answer: C

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40. Apparatus to measure rate of respiration and R.Q. is

A. auxanometer

B. potometer

C. respirometer

D. manometer

Answer: C

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41. When one glucose molecule is completely oxidised, it changes

A. 36 ADP molecules into 36 ATP molecules

B. 38 ADP molecules into 38 ATP molecules

C. 30 ADP molecules into 30 ATP molecules

D. 32 ADP molecules into 32 ATP molecules

Answer: B

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42. Terminal cytochrome of respiratory chain which donates electrons to oxygen is

A. cyt-b

B. cyt-c

C. $cyt - a_1$

D. $cyt - a_3$

Answer: D

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43. Out of 36 ATP molecules produced per glucose molecule during respiration

A. 2 are produced outside glycolysis and 34 during respiratory chain

B. 2 are produced outside mitochondria and 34 inside mitochondria

C. 2 during glycolysis and 34 during Krebs' cycle

D. all are formed inside mitochondria

Answer: B

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44. End product of glycolysis is

A. acetyl Co-A

B. pyruvic acid

C. glucose 1-phosphate

D. fructose 1-phosphate

Answer: B

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45. Total ATP production durig EMP pathway is

A. 6 ATP

B. 8 ATP

C. 24 ATP

D. 28 ATP

Answer: B

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46. Incomplete oxidation of glucose into pyruvic acid with several intermediate steps is known as

A. TCA-pathway

B. glycolysis

C. HMS-pathway

D. Krebs' cycle

Answer: B

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47. RQ is

A. C/N

B. N/C

C. CO_2 / O_2

D. O_2 / CO_2

Answer: C

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48. $NADP^+$ is reduced to NADPH in

A. HMP

B. Calvin cycle

C. glycoslysis

D. EMP

Answer: A

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