Respiration MCQs and Answers

1. Respiration is

a) Anabolic process

b) Exothermic process

c) Endothermic process

d) Endergonic process

Answer: Exothermic process

2. Alpha-ketoglutarate dehydrogenase results in

a) Oxidation and Decarboxylation

b) Reduction

c) Oxidation

d) None of the above

Answer: Oxidation and Decarboxylation

3. Glycolysis is also known as _____

a) EMP pathway

b) TCA pathway

c) carbon sequestration

d) None of the above

Answer: EMP pathway

4. Protons accumulate on the _____ in mitochondria.

a) Inner membrane

b) Intermembrane space

c) Outer membrane

d) None of the above

Answer: Intermembrane space

5. The process of cell respiration is carried out by _____

a) Mitochondria

b) Chloroplast

c) Nucleus

d) None of the above

Answer: Mitochondria

6. The process of respiration in green plants occurs

a) only when stomata are open

b) only when photosynthesis ceases

c) only when photosynthesis is in progress

d) At all times

Answer: At all times

7. Glycolysis takes place in

a) cytoplasm

b) chloroplast

c) ribosome

d) mitochondria

Answer: cytoplasm

8. Fermentation is conducted by

a) all bacteria

b) all fungi

c) some bacteria and some fungi

d) all microorganisms

Answer: an incomplete oxidation

9. Anaerobic respiration involves partly or wholly, the process of

a) Krebs' cycle

b) glycolysis and Krebs' cycle

c) oxidative phosphorylation

d) glycolysis

Answer: glycolysis

10. The process of respiration and photosynthesis have one thing in common

a) energy

b) cytochrome

c) chlorophyll

d) enzyme

Answer: cytochrome

11. Adenosine diphosphate contains

a) one high energy bond

b) two high energy bonds

c) no high energy bonds

d) 3 high-energy bonds

Answer: two high energy bonds

12. Respiratory quotient of germinating castor seed is

a) 1

b) >1

c) <1

d) 0

Answer: <1

13. Total ATP production during EMP pathway is

a) 24 ATP molecules

b) 8 ATP molecules

c) 38 ATP molecules

d) 6 ATP molecules

Answer: 8 ATP molecules

14. The formation of acetyl coenzyme A from pyruvic acid is the result of its

a) reduction

b) dehydration

c) dephosphorylation

d) oxidative decarboxylation

Answer: oxidative decarboxylation

15. Respiration in cell takes place in

a) ribosomes

b) nucleus

c) golgi body

d) mitochondria

Answer: mitochondria

16. One of the products of anaerobic respiration is

a) malic acid

b) lactic acid

c) pyruvic acid

d) ethyl alcohol

Answer: ethyl alcohol

17. Cytochromes in plant cells function mainly as

a) oxygen acceptor

b) carbon dioxide acceptor

c) electron acceptor

d) H2O acceptor

Answer: electron acceptor

18. The end products of anaerobic respiration in plants are

a) carbon dioxide, water and energy

b) water and energy

c) carbon dioxide and energy

d) carbon dioxide and water

Answer: carbon dioxide, water and energy

19. End product of glycolysis is

a) pyruvic acid

b) ethyl alcohol

c) glucose

d) carbon dioxide

Answer: pyruvic acid

20. Conversion of sugar into alcohol during fermentation is due to the direct action of

a) temperature

b) microorganisms

c) concentration of sugar solution

d) zymase

Answer: microorganisms

21. Biological oxidation and Krebs' cycle involves

a) N2

b) CO2

c) O2

d) SO2

Answer: O2

22. Under glycolysis, the pyruvic acid is reduced to lactic acid anaerobically in

a) liver

b) muscles

c) skin

d) brain

Answer: muscles

23. The last or terminal cytochrome in respiratory chain is

a) cytochrome a

b) cytochrome a3

c) cytochrome C

d) cytochrome G

Answer: cytochrome a3

24. Krebs' cycle is otherwise called

a) TCA cycle

b) Citric acid cycle

c) Tricarboxylic acid cycle

d) All of these

Answer: All of these

25. How many ATP molecules are produced by 1 gram molecule of glucose through aerobic respiration?

a) 32

b) 36

c) 38

d) 52

Answer: 38

26. The link between glycolysis and citric acid cycle is

a) NAD

b) FAD

c) Acetyl CoA

d) none

Answer: Acetyl CoA

27. The electron acceptor in ETS is

a) rhycocyanin

b) phycoerythrin

c) cytochrome

d) phytochrome

Answer: rhycocyanin

28. In aerobic respiration electrons and protons are ultimately picked up by

a) NAD

b) FAD

c) O2

d) CO2

Answer: O2

29. Mitochondria are the sites of

a) oxidative phosphorylation

b) photolysis

c) photophosphorylation

d) starch synthesis

Answer: oxidative phosphorylation

30. Name the product which is formed in both aerobic and anaerobic respiration

a) lactic acid

b) citric acid

c) isocitric acid

d) pyruvic acid

Answer: pyruvic acid

31. Conversion of pyruvic acid into ethyl alcohol is facilitated by the enzyme

a) carboxylase

b) dehydrogenase

c) phosphatase

d) both a and b

Answer: both a and b

32. The site of anaerobic respiration is

a) ribosome

b) nucleus

c) vacuoles

d) cytoplasm

Answer: cytoplasm

33. The acceptor substance of Krebs' cycle is

a) Acetyl CoA

b) Pyruvic acid

c) Oxalo Acetic Acid

d) Citric acid

Answer: Oxalo Acetic Acid

34. Anaerobic respiration is also called

a) fermentation

b) restoration

c) fragmentation

d) multiplication

Answer: fermentation

35. There are three classes of career molecules in ETS. The third class is

a) cytochromes

b) flavoproteins

c) coenzyme

d) none of these

Answer: coenzyme

36. The pyruvic acid found in glycolysis is oxidised to CO2 and H2O in a cycle called

a) Calvin cycle

b) Hill reaction

c) Krebs' cycle

d) Nitrogen cycle

Answer: Krebs' cycle

37. A molecule of Acetyl CoA has C atoms numbering

a) 3

b) 2

c) 4

d) 6

Answer: 2

38. RQ for fat is

a) more than 1

b) 0

c) one

d) less than one

Answer: less than one

39. Krebs' cycle occurs in

a) inner membrane of mitochondrion

b) outer membrane of mitochondrion

c) matrix of mitochondrion

d) perimitochondrial space of mitochondria

Answer: matrix of mitochondrion

40. ATPase activity takes place inside

a) head of F1 particle

b) base of F1 particle

c) stalk of F1 particle

d) all of the above

Answer: head of F1 particle

41. Energy for ATP synthesis is derived from

a) hydrogen ion gradient

b) oxygen ion gradient

c) nitrogen ion gradient

d) all of these

Answer: hydrogen ion gradient

42. In Krebs' cycle, a cyclic metabolic pathway is located in the

a) matrix of mitochondria

b) outer membrane of mitochondria

c) both a and b

d) chloroplast and mitochondria

Answer: matrix of mitochondria

43. Yeast and bacteria during anaerobic respiration yield

a) molecular oxygen

b) nitrogen

c) carbon dioxide

d) none of these

Answer: carbon dioxide

44. The oxidation of one NADPH2 yeilds

a) 1 ATP

b) 2 ATP

c) 3 ATP

d) 38 ATP

Answer: 3 ATP

45. A sudden change from anaerobic to aerobic process is called

a) Blackman's Law

b) Emerson effect

c) Chargaff rule

d) Pasteur effect

Answer: Pasteur effect

46. Aerobic repiratory pathway is appropriately termed

a) anabolic

b) catabolic

c) amphibolic

d) parabolic

Answer: amphibolic

47. Enzyme of TCA cycle are present in

a) chloroplast

b) mitochondria

c) ribosome

d) nucleus

Answer: mitochondria

48. In Krebs' cycle of oxalo acetic acid accepts acetyl CoA to form

a) citric acid

b) oxalosuccinate

c) fumarate

d) succinyl CoA

Answer: citric acid

49. One molecule of NADPH2 is equivalent to how many ATP molecules

a) 1

b) 3

c) 5

d) 7

Answer: 3

50. ATP was discovered by

a) Blackman

b) Bowman

c) Lipmann

d) Karl Lohmann

Answer: Lipmann

51. The end products of respiration in plants are

a) carbon dioxide, water and energy

b) starch and oxygen

c) sugar and oxygen

d) water and energy

Answer: carbon dioxide, water and energy

52. The net gain of ATP molecules during glycolysis is

a) 2

b) 4

c) 6

d) 10

Answer: 2

53. Energy rich compound produced during biological oxidation of glucose is

a) pyruvic acid

b) adenosine triphosphate

c) acetoacetate

d) adenosine monophosphate

Answer: adenosine triphosphate

54. Glucose is oxidised in the cell in

a) cytoplasm

b) mitochondria

c) chloroplast grana

d) ribosome

Answer: cytoplasm

55. Wine turns sour because of

a) heat

b) aerobic bacteria

c) anaerobic bacteria

d) exposure to light

Answer: aerobic bacteria

56. Fermentation is

a) an aerobic respiration

b) an incomplete oxidation

c) an excretory process

d) none of these

Answer: an incomplete oxidation

57. The site of glycolysis in a cell is

a) chloroplast

b) nucleus

c) cytoplasm

d) mitochondria

Answer: cytoplasm

58. Respiration is

a) Anabolic process

b) Exothermic process

c) Endothermic process

d) Endergonic process

Answer: Exothermic process

59. The annual plant exchange of gases takes place mainly through

a) Leaf scars

b) lenticels

c) stomata

d) stem

Answer: stomata

60. Phosphrylation of glucose during glycolysis is catalysed by:

a) Phosphoglucomutase

b) Phosphoglucoisomerase

c) Hexokinase

d) Phosphorylase

Answer: Phosphorylase