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**Subject: BIOLOGY**

**Respiration in plants**

* 1. Which statement is wrong for Krebs’ cycle?
     1. There is one point in the cycle where FAD+ is reduced to FADH2.
     2. During conversion of succinyl CoA to succinic acid, a molecule of GTP is synthesised.
     3. The cycle starts with condensation of acetyl group (acetyl CoA) with pyruvic acid to yield citric acid.
     4. There are three points in the cycle where NAD+ is reduced to NADH + H+.

1. Oxidative phosphorylation is
   1. formation of ATP by transfer of phosphate group from a substrate to ADP
   2. oxidation of phosphate group in ATP
   3. addition of phosphate group to ATP
   4. formation of ATP by energy released from electrons removed during substrate oxidation.
2. In which one of the following processes CO2 is not released?
   1. Aerobic respiration in plants
   2. Aerobic respiration in animals
   3. Alcoholic fermentation
   4. Lactate fermentation
3. Which of the metabolites is common to respiration­mediated breakdown of fats, carbohydrates and proteins?
   1. Pyruvic acid
   2. Acetyl CoA
   3. Glucose ­ 6 ­ phosphate
   4. Fructose 1, 6 ­ bisphosphate
4. In mitochondria, protons accumulate in the
   1. outer membrane
   2. inner membrane
   3. intermembrane space
   4. matrix.
5. The energy­releasing metabolic process in which substrate is oxidised without an external electron acceptor is called
6. glycolysis
7. fermentation
8. aerobic respiration
9. photorespiration
10. The chemiosmotic coupling hypothesis of oxidative phosphorylation proposes that adenosine triphosphate (ATP) is formed because
    1. a proton gradient forms across the inner membrane
    2. there is a change in the permeability of the inner mitochondrial membrane toward adenosine diphosphate (ADP)
    3. high energy bonds are formed in mitochondrial proteins
    4. ADP is pumped out of the matrix into the intermembrane space.
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
    1. isocitrate dehydrogenase (b) malate dehydrogenase
    2. succinate dehydrogenase (d) lactate dehydrogenase
12. How many ATP molecules could maximally be generated from one molecule of glucose, if the complete oxidation of one mole of glucose to CO2 and H2O yields 686 kcal and the useful chemical energy available in the high energy

phosphate bond of one mole of ATP is 12 kcal?

(a) 1 (b) 2 (c) 30 (d) 57

1. During which stage in the complete oxidation of glucose are the greatest number of ATP molecules formed from ADP?
   1. Glycolysis
   2. Krebs’ cycle
   3. Conversion of pyruvic acid to acetyl CoA
   4. Electron transport chain
2. Net gain of ATP molecules, during aerobic respiration, is
   1. 40 molecules (b) 48 molecules

(c) 36 molecules (d) 38 molecules

1. In alcohol fermentation
   1. triose phosphate is the electron donor while acetaldehyde is the electron acceptor
   2. triose phosphate is the electron donor while pyruvic acid is the electron acceptor
   3. there is no electron donor
   4. oxygen is the electron acceptor
2. End products of aerobic respiration are
   1. sugar and oxygen
   2. water and energy
   3. carbon dioxide, water and energy
   4. carbon dioxide and energy.
3. Out of 36 ATP molecules produced per glucose molecule during respiration
   1. 2 are produced outside glycolysis and 34 during respiratory chain
   2. 2 are produced outside mitochondria and 34 inside mitochondria
   3. 2 during glycolysis and 34 during Krebs cycle
   4. all are formed inside mitochondria.
4. R.Q. is
   1. C/N (b) N/C

(c) CO2/O2 (d) O2/CO2

Plant Growth and Development

1. Fruit and leaf drop at early stages can be prevented by the application of
   1. ethylene (b) auxins

(c) gibberellic acid (d) cytokinins.

1. You are given a tissue with its potential for differentiation in an artificial culture. Which of the following pairs of hormones would you add to the medium to secure shoots as well as roots?
   1. IAA and gibberellin
   2. Auxin and cytokinin
   3. Auxin and abscisic acid
   4. Gibberellin and abscisic acid
2. The *Avena* curvature is used for bioassay of
   1. IAA (b) ethylene

(c) ABA (d) GA3

1. Typical growth curve in plants is
   1. stair­steps shaped (b) parabolic

(c) sigmoid (d) linear

1. Which one of the following growth regulators is known as ‘stress hormone’?
   1. Abscisic acid (b) Ethylene

(c) GA3 (d) Indole acetic acid

1. During seed germination its stored food is mobilized by
   1. ABA (b) gibberellin

(c) ethylene (d) cytokinin

1. Through their effects on plant growth regulators, what do the temperature and light control in the plants?
   1. Apical dominance (b) Flowering

(c) Closure of stomata (d) Fruit elongation

1. Which one of the following generally acts as an antagonist to gibberellins?
   1. Zeatin (b) Ethylene

(c) ABA (d) IAA

1. Vernalization stimulates flowering in
   1. zamikand (b) turmeric

(c) carrot (d) ginger

1. One of the commonly used plant growth hormone in tea plantations is
   1. ethylene
   2. abscisic acid
   3. zeatin
   4. indole­3­acetic acid.]
2. Opening of floral buds into flowers, is a type of
   1. autonomic movement of variation
   2. paratonic movement of growth
   3. autonomic movement of growth
   4. autonomic movement of locomotion
3. Farmers in a particular region were concerned that pre­mature yellowing of leaves of a pulse crop might cause decrease in the yield. Which treatment could be most beneficial to obtain maximum seed yield?
   1. Application of iron and magnesium to promote synthesis of chlorophyll
   2. Frequent irrigation of the crop
   3. Treatment of the plants with cytokinins along with a small dose of nitrogenous fertilizer
   4. Removal of all yellow leaves and spraying the remaining green leaves with 2, 4, 5­trichlorophenoxy acetic acid
4. How does pruning help in making the hedge dense?
   1. It releases wound hormones.
   2. It induces the differentiation of new shoots from the rootstock.
   3. It frees axillary buds from apical dominance.
   4. The apical shoot grows faster after pruning
5. Treatment of seeds at low temperature under moist conditions to break its dormancy is called
   1. stratification (b) scarification (c) vernalization (d) chelation
6. Coconut milk factor is
   1. an auxin (b) a gibberellins (c) abscisic acid (d) cytokinin.