**1.** Identify the step in tricarboxylic acid cycle, which does not involve oxidation of substrate. **(2024)**

(a) Succinic acid - Malic acid

(b) Succinyl – CoA - Succinic acid

(c) Isocitrate - $\alpha$ – ketoglutaric acid

(d) Malic acid - Oxaloacetic acid

**2.** Match List I with List II **(2024)**

| **List – I** | | **List – II** | |
|---|---|---|---|
| A. | Citric acid cycle | I. | Cytoplasm |
| B. | Glycolysis | II. | Mitochondria matrix |
| C. | Electron transport system | III | Intermembrane space of mitochondria |
| D. | Proton gradient | IV | Inner Mitochondrial membrane |

Choose the correct answer from the options given below:

(a) A – II, B – I, C – IV, D – III

(b) A – III, B – IV, C – I, D – II

(c) A – IV, B – III, C – II, D – I

(d) A – I, B – II, C – III, D – IV

**3.** Match List-l with List-II:

| **List – I** | | **LIst – II** | |
|---|---|---|---|
| A | Oxidative decarboxylation | (i) | Citrate synthase |
| B | Glycolysis | (ii) | Pyruvate dehydrogenase |
| C | Oxidative phosphorylation | (iii) | Electron transport system |
| D | Tricarboxylic acid cycle | (iv) | EMP pathway |

Choose the correct answer from the options given below: **(2023)**

(a) A-II, B-IV, C-III, D-I

(b) A-III, B-IV, C-II, D-I

(c) A-II, BIV, C-1, D-III

(d) A-III, B-I, C-II, D-IV

**4.** Which of the following combinations is required for chemiosmosis? **(2023)**

(a) Membrane, proton pump, proton gradient, NADP synthase

(b) Proton pump, electron gradient, ATP synthase

(c) Proton pump, electron gradient, NADIP synthase

(d) Membrane, proton pump, proton gradient, ATP synthase

**5.** Melonate inhibits the growth of pathogenic bacteria by inhibiting the activity of **(2023)**

(a) Amylase

(b) Lipase

(c) Dinitrogenase

(d) Succinic dehydrogenase

**6.** How many times decarboxylation occurs during each TCA cycle? **(2023)**

(a) Thrice (b) Many

(c) Once (d) Twice

**7.** Fatty acids are connected with the respiratory pathway through: **(2023)**

(a) Acetyl CoA

(b) a-Ketoglutaric acid

(c) Dihydroxy acetone phosphate

(d) Pyruvic acid

**8.** The number of time(s) decarboxylation of isocitrate occurs during single TCA cycle is **(2022)**

(a) Four (b) One

(c) Two (d) Three

**9.** What is the net gain of ATP when each molecule of glucose is converted to two molecules of pyruvic acid? **(2022)**

(a) Four (b) Six

(c) Two (d) Eight

**10.** What amount of energy is released from glucose during lactic acid fermentation? **(2022)**
(a) Approximately 15%
(b) More than 18%
(c) About 10%
(d) Less than 7%

**11.** Which of the following statements is incorrect? **(2021)**
(a) In ETC (Electron Transport Chain), one molecule of NADH + $H^+$ gives rise to 2 ATP molecules, and one $FADH_2$ gives rise to 3 ATP molecules
(b) ATP is synthesized through complex-V
(c) Oxidation-reduction reactions produce proton gradient in respiration
(d) During aerobic respiration, role of oxygen is limited to the terminal stage

**12.** The number of substrate level phosphorylations in one turn of citric acid cycle is: **(2020)**
(a) One (b) Two
(c) Three (d) Zero

**13.** Pyruvate dehydrogenase activity during aerobic respiration requires: **(2020 Covid Re-NEET)**
(a) Iron (b) Cobalt
(c) Magnesium (d) Calcium

**14.** Respiratory Quotient (RQ) value of tripalmitin is **(2019)**
(a) 0.9 (b) 0.7
(c) 0.07 (d) 0.09

**15.** Conversion of glucose to glucose-6-phosphate, the first irreversible reaction of glycolysis, is catalysed by **(2019)**
(a) Aldolase
(b) Hexokinase
(c) Enolase
(d) Phosphofructokinase

**16.** What is the role of NAD+ in cellular respiration? **(2018)**
(a) It functions as an enzyme
(b) It functions as an electron carrier
(c) It is a nucleotide source for ATP synthesis
(d) It is the final electron acceptor for anaerobic respiration

**17.** Which of these statements is incorrect? **(2018)**
(a) Enzymes of TCA cycle are present in mitochondrial matrix.
(b) Glycolysis occurs in cytosol.
(c) Glycolysis operates as long as it is supplied with NAD that can pick up hydrogen atoms.
(d) Oxidative phosphorylation takes place in outer mitochondrial membrane.

**18.** Which statement is wrong for Krebs' cycle? **(2017)**
(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 CoA to succinic acid, a molecule of GTP is synthesized
(d) The cycle starts with condensation of acetyl group (acetyl CoA) with pyruvic acid to yield citric acid

**19.** Which of the following values will depict correct respiratory quotient when tripalmitin (a fatty acid) is used as a respiratory substrate? **(2017)**
(a) 1.1
(b) 1
(c) 0.7
(d) 0.9

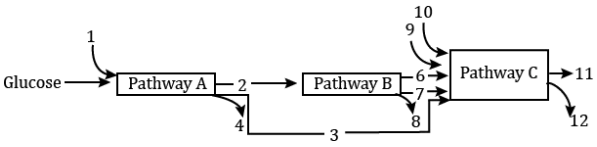
**20.** Oxidative phosphorylation is: **(2016 - II)**
(a) Addition of phosphate group to ATP.
(b) Formation of ATP by energy released from electrons removed during substrate oxidation.
(c) Formation of ATP by transfer of phosphate group from a substrate to ADP
(d) Oxidation of phosphate group in ATP

**21.** Which of the following biomolecules is common to respiration-mediated breakdown of fats, carbohydrates and proteins? **(2016 - II, 2003)**
(a) Pyruvic acid
(b) Acetyl CoA
(c) Glucose-6-phosphate
(d) Fructose 1, 6-bisphosphate

**22.** Cytochromes are found in: **(2015)**
(a) Cristae of mitochondria
(b) Lysosomes
(c) Matrix of mitochondria
(d) Outer wall of mitochondria

**23.** In which one of the following processes $CO_2$ is not released? **(2014)**
(a) Lactate fermentation
(b) Aerobic respiration in plants
(c) Aerobic respiration in animals
(d) Alcoholic fermentation

**24.** The three boxes in this diagram represent the three major biosynthetic pathways in aerobic respiration. Arrows represent net reactants or products: **(2013)**




Arrows numbered 4, 8, and 12 can all be
(a) $FAD^+$ or $FADH_2$ (b) NADH
(c) ATP (d) $H_2O$