GURUDAS COLLEGE

DEPARTMENT OF BIOCHEMISTRY

UG INTERMEDIATE EXAMINATION, 2020

B.SC BIOCHEMISTRY HONS. SEMESTER IV

PAPER Core Course 8 Membrane Biology and Bioenergetics (Semester 4) BCM-A-CC-4-8-TH

TIME 30 mins FULL MARKS 10+25

Choose correct answer:

1.What products of glucose oxidation are essential for oxidative phosphorylation?
a) Pyruvate
b) NADH and FADH2
c) NADPH and ATP
d) Acetyl CoA

2. What is the effect of increased levels of hydrogen ions in the intermembrane space of the mitochondria?
a) Increased levels of water in intermembrane space
b) Increased ATP production
c) Decreased levels of oxidative phosphorylation
d) Decreased levels of chemiosmosis

3. Energy is released from ATP when
a) a phosphate group is removed
b) adenine is bonded to ribose
c) a phosphate group is added
d) ATP is exposed to sunlight

4. Cyanide is a poison that inhibits the electron transport chain by creating a strong and stable bond with Fe–Cu center in cytochrome C oxidase (complex IV). What is the immediate consequence of cyanide poisoning?
a) Prevent reduction of oxygen
b) Prevent reduction of NADH
c) Prevent oxidation of NADH
d) Prevent oxidation of oxygen

5. Which electron carrier would have the greatest negative impact on ATP production during oxidative phosphorylation if its production was inhibited?
a) NADH
b) Oxygen
c) FADH2
d) Water

6. What would occur if all available hydrogen ions were used by ATP synthase?
a) It would increase the pH of the mitochondrial intermembrane space
b) It would increase the pH of the mitochondrial matrix
c) It would decrease the levels of inorganic phosphate in the intermembrane space
d) It would increase the levels of inorganic phosphate in the mitochondrial matrix.

7. The proton pump in oxidative phosphorylation creates a gradient of protons across the inner mitochondrial membrane. What kind of energy is generated with such gradient?

a) Membrane energy
b) Protonic energy
c) Potential energy
d) Kinetic energy

8. Disruption of which process will have the greatest impact on the number of electron carriers used by the electron transport chain?
a) glycolysis
b) the citric acid cycle
c) formation of FADH2
d) anaerobic pathways

9. Lipid bilayer is
   a) Hydrophilic
   b) Hydrophobic
   c) Hydrophilic and hydrophobic
   d) Depend on the surrounding medium

10. Which of the following membrane has the largest amount of proteins
   a) Erythrocyte membrane
   b) Myelin sheath
   c) Inner mitochondrial membrane
   d) Outer mitochondrial membrane

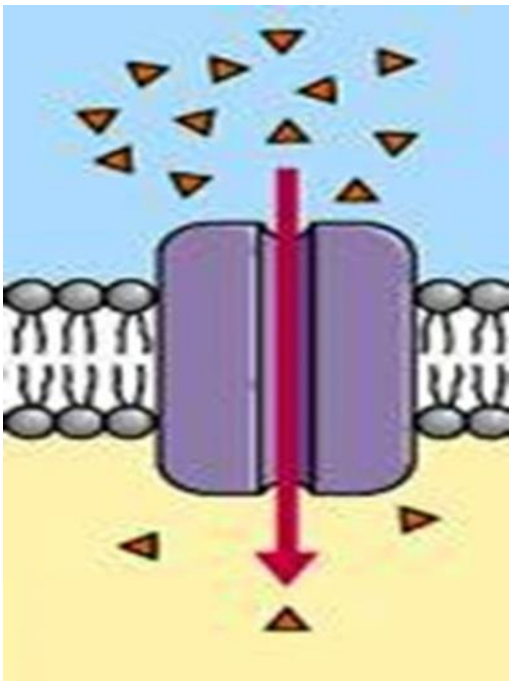
11. High lipid content is a characteristic of
   a) Erythrocyte membrane
   b) Myelin sheath
   c) Inner mitochondrial membrane
   d) Outer mitochondrial membrane

12. The distribution of intrinsic proteins in the cell membrane is
   a) Symmetrical
   b) Asymmetrical
   c) Random
   d) Uniform

13. In cell membrane, carbohydrate in glycoproteins or glycolipids are oriented
   a) Towards outside
   b) Towards inside
   c) Towards outside & inside
   d) Randomly distributed

14. The plasma membrane is impermeable to all molecules except
   a) Glucose
   b) ATP
   c) Urea
   d) K^+

15. The erythrocyte glucose transporter is an example of



a) Simple diffusion
b) Active transport
c) Facilitated diffusion
d) Ion driven active transport

16. Which of the following transport induces conformational change in protein
    a) Simple diffusion
    b) Active transport
    c) Facilitated diffusion
    d) Ion driven active transport
17. Na^+ glucose transporter is an example of
    a) Facilitated diffusion
    b) ATP driven active transport
    c) Symport
    d) Antiport
18. Clathrin coated pits are associated with
    a) Phagocytosis
    b) Pinocytosis
    c) Receptor mediated endocytosis
    d) Exocytosis