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1). When voltage 'V' is applied across a pair of electrode (cathode and anode), a potential gradient 'E' is created between the electrodes. We can calculate 'E' as:

- a.  $E = V/d$
- b.  $E = (1/V) \times q$
- c.  $E = (Vd)/q$
- d.  $E = V + d$

2). The velocity ('v') of a charged particles in an electric field in a medium can be mathematically expressed as  $v = Eq/f$ , where 'Eq' and 'f' are \_\_\_\_\_.

- a. Eq: Energy; f: Frictional force
- b. Eq: Electrical force; f: Gravitational force
- c. **Eq: Electrical force; f: Frictional co-efficient**
- d. Eq: Equilibrium constant; f: co-efficient of gravity

3). For the separation of DNA by electrophoresis, which of the following method is commonly used?

- a. Agarose – vertical
- b. **Agarose – horizontal**
- c. PAGE – vertical
- d. PAGE – horizontal

4). Sodium dodecyl sulfate (SDS) used in SDS PAGE is\_\_\_\_\_.

- a. **An anionic detergent**
- b. A cationic detergent
- c. A non-ionic detergent
- d. An anion exchanger
- e. A cation exchanger

5). Function of  $\beta$ -mercaptoethanol in SDS-PAGE is\_\_\_\_\_.

- a. To give negative charges to amino acids in the proteins
- b. For the oxidation of disulfide bonds in the proteins
- c. **For the reduction of disulfide bonds in the proteins**
- d. For breaking hydrogen bonds in the proteins

6). The ratio of velocity ('v') of biomolecule in a medium under constant electric field ('E') is called 'Electrophoretic mobility' denoted as ' $\mu$ '. ' $\mu$ ' is mathematically expressed as:

- a.  $\mu = E/v$
- b.  **$\mu = v/E$**
- c.  $\mu = 1/(Ev)$
- d.  $\mu = VE$

7). In electrophoresis, the electrophoretic mobility ( $\mu$ ) is determines the characteristics of migration of different biomolecules. Which of the following is not having any influence in ' $\mu$ '?

- a. **Stereochemistry of molecule**
- b. Size of molecule
- c. Shape of molecule
- d. Molecular weight
- e. Net charge of molecule

8). Electrophoresis is not used for the separation of \_\_\_\_\_.

- a. Nucleic acids
- b. Proteins
- c. Amino acids
- d. **Lipids**

9). In SDS-PAGE of protein separation, one SDS molecule will binds to \_\_\_\_\_.

- a. Every amino acid
- b. **Every two amino acids**
- c. Every three amino acids
- d. Every Four amino acids

10). In SDS-PAGE, migration of protein is effected by \_\_\_\_\_.

- a. Charge of protein
- b. **Size of protein**
- c. Net charge of protein
- d. All of these