

# Gurudas College

## Department of Biochemistry B Sc. Hons Semester I

### Internal Assessment (CC2), 2020 Biochemistry (Honours)

Attempt all the questions

[10 X 1 = 10]

1. One among the following statements concerning light is false?

- (A) It is form of energy.
- (B) It cannot be deflected by a magnet.
- (C) It consists of photons of same energy.
- (D) It is a part of electromagnetic spectrum.

2. The conclusion that every additional electron enters the orbital with lowest possible energy has been drawn from

- (A) Pauli's exclusion principle
- (B) Hund's rule
- (C) Aufbau principle
- (D) de-Broglie's equation.

3. Which out of the following structures is expected to have three bond pairs and one lone pair?

- (A) Tetrahedral
- (B) Octahedral
- (C) Trigonal planar
- (D) Pyramidal

4. O<sub>2</sub> molecule is

- (A) paramagnetic
- (B) diamagnetic
- (C) ferromagnetic
- (D) none of these

5. Hybridisation involves

- (A) Separation of atomic orbitals
- (B) Overlapping of atomic orbitals
- (C) Mixing of atomic orbitals of atom

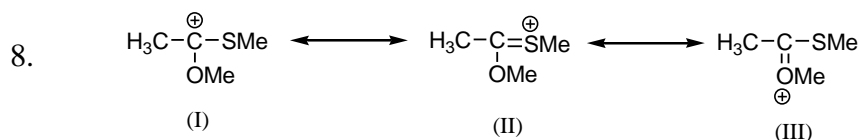
(D) All of these

6. Which of the following statements is/are correct?

- (a) A meso compound has chiral centres but exhibits no optical activity.
- (b) A meso compound has no chiral centre and thus are optically inactive.
- (c) A meso compound has molecules which are non-superimposable on their mirror images.
- (d) A meso compound is optically inactive because the rotation caused by any molecule is cancelled by an equal and opposite rotation caused by another molecule that is the mirror image of the first.

7. Which of the following compounds may not exist as enantiomers?

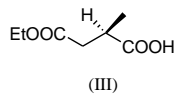
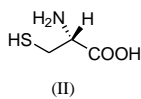
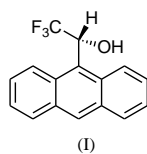
- (a)  $\text{CH}_3\text{CH}(\text{OH})\text{CO}_2\text{H}$
- (b)  $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$
- (c)  $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_3$
- (d)  $\text{C}_6\text{H}_5\text{CH}(\text{Cl})\text{CH}_3$



Which of the following statements is correct for the above case?

- (a) II is more stable canonical form and contributes maximum in conjugation
- (b) III is more stable canonical form and contributes maximum in conjugation
- (c) I is more stable canonical form and contributes maximum in conjugation
- (d) II and III have equal stability and contribute equally in conjugation

9. Assign the configuration R/S of the following compound respectively



- (a) R, S, R
- (b) R, R, R
- (c) R, R, S
- (d) S, S, R

10. Stability of which of the following intermediate is governed by hyperconjugation

- (a) Carbonium ion
- (b) Carbanion
- (c) Carbenium ion
- (d) None of the above