

MHT CET 2022 Mathematics Memory Based Question Paper PDF

1. The reagent combination of Sn/HCl is primarily used in organic chemistry for which of the following transformations?
 - (1) Oxidation of primary alcohols to aldehydes
 - (2) Reduction of nitro compounds to primary amines
 - (3) Decarboxylation of carboxylic acids
 - (4) Halogenation of alkanes
2. Which of the following represents the repeating unit in the structure of Polyacrylonitrile (PAN)?
 - (1) $-[CH_2 - CH(Cl)]_n-$
 - (2) $-[CH_2 - CH(CN)]_n-$
 - (3) $-[CH_2 - CH(C_6H_5)]_n-$
 - (4) $-[CH_2 - C(CH_3) = CH - CH_2]_n-$
3. At room temperature and standard pressure, what is the physical state of all Noble Gases?
 - (1) Diatomic gases
 - (2) Monoatomic gases
 - (3) Triatomic gases
 - (4) Liquefied gases
4. In a non-polar molecular solid like I_2 , which type of bonding or attractive force is predominantly present between the molecules?
 - (1) Ionic bonding
 - (2) Hydrogen bonding
 - (3) London dispersion forces (Van der Waals)

(4) Metallic bonding

5. Which of the following is the correct integrated rate equation for a zero-order reaction?

(1) $k = \frac{[A]_0 - [A]_t}{t}$

(2) $k = \frac{2.303}{t} \log \frac{[A]_0}{[A]_t}$

(3) $k = \frac{1}{t} \left(\frac{1}{[A]_t} - \frac{1}{[A]_0} \right)$

(4) $t_{1/2} = \frac{0.693}{k}$

6. What is the IUPAC name of the compound commonly known as mesityl oxide?

(1) 4-methylpent-3-en-2-one

(2) 2-methylpent-2-en-4-one

(3) 3-methylbut-2-enal

(4) 4-methylpent-4-en-2-one

7. Which of the following molecules possesses a chiral center and is therefore optically active?

(1) 2-chlorobutane

(2) 1-chlorobutane

(3) 2-chloropropane

(4) 2,2-dichloropropane

8. Which of the following elements has the highest electronegativity according to the Pauling scale?

(1) Oxygen

(2) Chlorine

(3) Fluorine

(4) Nitrogen

9. If a number is chosen at random from the first 100 natural numbers (1 to 100 inclusive), what is the probability that the number is an odd number?

- (1) $1/4$
- (2) $1/2$
- (3) $50/100$
- (4) Both (2) and (3)

