



General Instructions

- (i) The examination will be conducted in Computer-Based Test (CBT) mode.
- (ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.
- (iii) The total number of questions are 50.
- (iv) Duration of the exam is 1 hour (60 minutes).

1. According to Collision Theory, the rate constant of a chemical reaction depends on activation energy. If the activation energy of a reaction increases, then the value of the rate constant k will:

- (A) Increase exponentially
 - (B) Remain unchanged
 - (C) Decrease exponentially
 - (D) Become zero
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2. For a first order reaction, the time required for completion of 75% of the reaction is 40 minutes. The half-life of the reaction is:

- (A) 10 min
 - (B) 20 min
 - (C) 40 min
 - (D) 80 min
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3. The standard electrode potential of zinc electrode is -0.76 V and that of copper electrode is

+0.34 V. The standard EMF of the Daniell cell is:

- (A) 0.42 V
 - (B) 1.10 V
 - (C) 0.76 V
 - (D) 1.52 V
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4. The Nernst equation for a half-cell reaction at 298 K is:

- (A) $E = E^\circ - \frac{0.0591}{n} \log Q$
 - (B) $E = E^\circ + \frac{0.0591}{n} \log Q$
 - (C) $E = E^\circ - \frac{n}{0.0591} \log Q$
 - (D) $E = E^\circ + \frac{n}{0.0591} \log Q$
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5. The violet colour of KMnO_4 solution is due to:

- (A) d – d transition
 - (B) Charge transfer transition
 - (C) Presence of unpaired electrons
 - (D) Hybridization
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6. For the reaction:



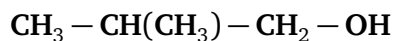
the rate law is:

$$\text{Rate} = k[A]^2$$

If the concentration of A is doubled, the rate of reaction will become:

- (A) Doubled
 - (B) Four times
 - (C) Half
 - (D) Unchanged
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7. The IUPAC name of the compound



is:

- (A) Propan-1-ol
 - (B) 2-Methylpropan-1-ol
 - (C) Butan-2-ol
 - (D) 2-Methylpropan-2-ol
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8. The number of sigma (σ) and pi (π) bonds respectively in ethene molecule are:

- (A) 4σ , 1π
 - (B) 5σ , 1π
 - (C) 6σ , 1π
 - (D) 5σ , 2π
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9. The hybridization of carbon atom in CH_4 molecule is:

- (A) sp
 - (B) sp^2
 - (C) sp^3
 - (D) dsp^2
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10. Which of the following solutions will conduct electricity most effectively?

- (A) Glucose solution
 - (B) Urea solution
 - (C) Sodium chloride solution
 - (D) Sugar solution
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