

Intermediate Examination 2020  
Sundarban Mahavidyalaya  
Semester - IV, CEMA  
Paper - CC-9 (Physical)

Attempt any ten questions.

1. An example of colligative properties is
  - a) boiling point
  - b) Freezing point
  - c) Osmotic pressure
  - d) vapour pressure.
2. vant Hoff's factor ( $i$ ) for  $\text{CaCl}_2$  in a given solution is 2.8, the degree of dissociation of  $\text{CaCl}_2$  is
  - a) 60%
  - b) 70%
  - c) 80%
  - d) 90%
3. In a cubic type unit cell, A atom in face and B atom is in corners of the cube. The formula of the molecule is
  - a)  $\text{A}_3\text{B}_2$
  - b)  $\text{AB}_3$
  - c)  $\text{B}_3\text{A}_2$
  - d)  $\text{B}_3\text{A}$
4. Which of the following is Bragg's equation?
  - a)  $2\lambda = n \sin \theta$
  - b)  $n\lambda = 2d \sin \theta$
  - c)  $2n\lambda = d \sin \theta$
  - d)  $n\lambda/2 = d \sin \theta$
5. Which of the following planes will be absent in a simple cubic system?
  - a) 100
  - b) 200
  - c) 110
  - d) 111
6. An electrochemical cell can behave like an electrolytic cell, when
  - a)  $E_{\text{cell}} = 0$
  - b)  $E_{\text{cell}} > E_{\text{ext}}$
  - c)  $E_{\text{cell}} < E_{\text{ext}}$
  - d)  $E_{\text{cell}} = E_{\text{ext}}$
7. The potential for a hydrogen electrode of  $\text{pH} = 10$  is
  - a) 0.00V
  - b) 0.591V
  - c) -0.591V
  - d) -0.059V
8. Specific conductance — but equivalent conductance — with increasing in dilution.
  - a) decrease, increase
  - b) increase, decrease
  - c) increase, increase
  - d) decrease, decrease
9. The molar conductance depends on
  - a) no of ions
  - b) mobility of ions
  - c) viscosity of medium
  - d) all
10. The values of  $[\hat{x}^n, \hat{p}_x]$  is
  - a)  $-\frac{h}{2\pi i} n x^{n-1}$
  - b)  $-\frac{h}{2\pi i} n x^n$
  - c)  $\frac{h}{2\pi i} n$
  - d)  $n x^{n-1}$
11. If  $\hat{A} = 3x^y$  and  $\hat{B} = \frac{d}{dx}$  then
  - a)  $\hat{A}$  &  $\hat{B}$  are commute
  - b)  $\hat{A}$  &  $\hat{B}$  do not commute
  - c)  $\hat{A} = \hat{B}$