2SM **SECOND MID TERM TEST - 2019**

12 - STD **CHEMISTRY**

Time : 1.30 Marks : 50

Choose the correct answer. 8 X 1 = 8

1. PH of Saturated solution of $Ca(OH_2)$ is 9, The solubility product (K_{SP}) of $Ca(OH_2)$
   a) 0.5×10^{-15} b) 0.25×10^{-10}
   c) 0.125×10^{-15} d) 0.5×10^{-10}
2. Which of the following fluro compounds is most likely to behave as a Lawis base?
   a) BF_3 b) PF_3 c) CF_3 d) SiF_4
3. What is the PH of the resulting when equal volumes of 0.1M NaOH and 0.01M HCl are mixed?
   a) 2.0 b) 3 c) 7.0 d) 12.65
4. The number of electrons that have a total charge of 9650 coulombs is
   a) 6.22×10^{23} b) 6.022×10^{24}
   c) 6.022×10^{22} d) 6.022×10^{-34}
5. Which of the following electrolytic solution has the least specific conductance
   a) 2N b) 0.002N c) 0.02N d) 0.2N
6. Among the following cells.
   I) Leclanche cell II) Nickel - Cadmium cell
   III) Lead storage battery IV) Mercury cells primary cells are
   a) I and IV b) I and III c) III and IV d) II and III
7. For Freundlich isotherm a graph of $\log {}^{x}/_{m}$ is plotted against log P. The slope of the line and its y-axis intercept respectively corresponds to
   a) $1/n$, K b) $\log 1/n$, K c) $1/n$, $\log K$ d) $\log 1/n$, $\log K$
8. Adsorption of a gas on solid metal surface is spontaneous and exothermic, then
   a) ΔH increases b) ΔS increases
   c) ΔG increases d) ΔS decreases

Answer the following any 6 questions. 2 X 6 = 12

9. What are Lewis acids and bases?
10. Define solubility product.
11. Define PH.
12. Why does conductivity of a solution decrease on dilution of the solution.
13. State Kohlrausch law.
14. Why is AC current used instead of DC in measuring the electrolytic conductance?
15. In case of chemisorption, why adsorption first increases and then decreases with temperature?
16. Which will be adsorbed more readily on the surface of charcoal and why? NH_3 or CO_2?
17. Addition of Alum purifies water. Why?

Answer the following questions any 5 questions. 3 X 5 = 15

18. Explain common ion effect with an example.
19. Derive an expression for Ostwald's dilution law.
20. The Ka value for HCN is 10^{-9}. What is the PH of 0.4M HCN solution?
21. State Faraday's first laws of electrolysis.
22. Why is anode in galvanic cell considered to be negative and cathode positive electrode?
23. Give three uses of emulsions.
24. Write a note on catalytic poison.

Answer the following any 3 questions. 5 X 3 = 15

25. Discuss the Lowry - Bronsted concept of acids and base.
26. Derive the Henderson - Hasselbelch equation.
27. Describe the construction of Daniel cell. Write the cell reaction.
28. Derive an expression for Nernst equation.
29. Differentiate physisorption and chemisorption.
30. Describe adsorption theory of catalysis.