Surface Chemistry Test

Time: 1 hr

Max Marks: 30

General Instructions:
1. Question numbers 1 to 10 are one-mark questions.
2. Question numbers 11 to 15 are two-mark questions.
3. Question numbers 16 to 17 are three-mark questions.
4. Question numbers 18 to 18 are four-mark questions.

Q1. 'Generally high temperature is favorable for chemisorption.' Why ?

a. High specifiity
b. High activation energy
c. Irreversability
d. Enthalpy is high

Q2. Name the catalyst used in the Ostwald process for the manufacture of nitric acid

a. Fe/FeO
b. MO
c. Pt
d. V_2O_5

Q3. Which of the following is Freundlich adsorption isotherm relation.

a. log x/m = log k + 1/n logP
b. adsorption is independent of pressure
c. directly proportional to pressure.
d. inversely proportional to pressure.

Q4. What are the physical states of dispersed phase and dispersion medium in foam rubber?

a. Solid, Gas
b Liquid , Gas
c. Gas , Solid
d. Liquid Solid

Q5 Which of the following is true for entropy change involved when the molecules of a substance get adsorbed on a solid surface?

a $\Delta S = +ve$
b $\Delta S = -ve$
c $\Delta S = 0$
d $\Delta S = \Delta G$

Q6 Which of the following is more effective in coagulating positively charged hydrated ferric oxide sol?

a. KCl
b. $CaSO_4$
c. $K_3[Fe(CN)_6]$
d. NaCl

Q7. Name the enzyme which convert starch into maltose?

a. Diastase
b. Zymase
c. Pepsin
d. Maltase

Q8. What is the catalyst used In dehydration of alcohols in formation of synthetic gasoline?

a. ZSM-5.
b. Cu/ZnO
c. Ni
d. Pt

Q9. State the purpose of impregnating the filter paper with colloidion solution.?

a. To reduce pore size of filter paper, so that colloidal particles cannot pass through
b. To increase pore size of filter paper, so that colloidal particles can pass through
c. Same principle as electrodialysis
d. The molecules and ions diffuse through membrane into the outer water and pure colloidal solution is left behind.

Q10. Mention the two conditions for the formation of micelles?

(a) CMC and T_k
(b) Lyophillic colloids and Lyophobic colloids
(c) sols and gels
(d) none of these

Q11. Define the term peptization and mention its cause?

Q12. Explain the effect of temperature on the extent of physical and chemical adsorption:

Q13. Suggest a mechanism of enzyme catalysed reaction.

Q14. Write the differences between adsorption and absorption

Q15. How can physisorption be distinguished from chemisorptions?

Q16. Write the difference between

a. catalysts and enzymes
b. promoters and poisons

Q17. Mention two important features of solid catalysts and explain them with the help of suitable examples?

Q18. Describe some features of catalysis by Zeolites.