Padasalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- **Padasalai's NEWS - Group**
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- **Padasalai's Channel - Group**
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- **Lesson Plan - Group**
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- 9th Standard - Group
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ST.JOHNS MATRIC .HR.SEC.SCHOOL

No:13 New colony, Porur Chennai -116.

MONTHLY TEST (2019-20)   TIME: 1.30 hrs

STD - XI   **CHEMISTRY**   **MAX.MARKS:50**

I . Choose the most suitable answer   **10 x 1 = 10**

1. The equilibrium constant for a reaction at room temperature is K_1 and that at 700 K is K_2.
   If $K_1 > K_2$, then

   a) The forward reaction is exothermic   b) The forward reaction is endothermic

   c) The reaction does not attain equilibrium   d) The reverse reaction is exothermic

2. For the reaction AB (g) $\rightleftharpoons$ A(g) + B(g), at equilibrium, AB is 20% dissociated at a total pressure of P,
   The equilibrium constant K_P is related to the total pressure by the expression

   a) P = 24 K_P b) P = 8 K_P c) 24 P = K_P d) none of these

3. Which of the following is not a general characteristic of equilibrium involving physical process

   a) Equilibrium is possible only in a closed system at a given temperature

   b) The opposing processes occur at the same rate and there is a dynamic but stable condition

   c) All the physical processes stop at equilibrium

   d) All measurable properties of the system remains constant

4. The values of K_{P_1} and K_{P_2} for the reactions   X $\rightarrow$ Y + Z
   A $\rightleftharpoons$ 2B are in the ratio 9 : 1 if degree of dissociation and initial concentration of X and A be equal then
   total pressure at equilibrium P_1, and P_2 are in the ratio

   a) 36 : 1   b) 1 : 1   c) 3 : 1   d) 1 : 9

5. K_1 and K_2 are the equilibrium constants for the reactions respectively.
   $$N_2(g) + O_2(g) \overset{K_1}{\rightleftharpoons} 2NO(g) \quad , \quad 2NO(g) + O_2(g) \overset{K_2}{\rightleftharpoons} 2NO_2(g)$$

   What is the equilibrium constant for the reaction $NO_2(g) \rightleftharpoons \frac{1}{2} N_2(g) + O_2(g)$

   a) $\dfrac{1}{\sqrt{K_1 K_2}}$ b) $\left(K_1 = K_2 \right)^{1/2}$ c) $\dfrac{1}{2K_1 K_2}$ d) $\left(\dfrac{1}{K_1 K_2} \right)^{3/2}$

6. Which one of the following shows functional isomerism?

   a) ethylene   b) Propane   c) ethanol   d) CH_2Cl_2

7. The IUPAC name of the compound CH_3–CH = CH – C $\equiv$ CH is

   a) Pent - 4 - yn-2-ene   b) Pent -3-en-l-yne   c) pent – 2– en – 4 – yne   d) Pent – 1 – yn –3 –ene

8. Ortho and para-nitro phenol can be separated by
   a) azeotropic distillation   b) destructive distillation   c) steam distillation   d) cannot be separated

9. Nitrogen detection in an organic compound is carried out by Lassaigne's test. The blue colour formed
   is due to the formation of.
   a) $Fe_3[Fe(CN)_6]_2$ b) $Fe_4[Fe(CN)_6]_3$ c) $Fe_4[Fe(CN)_6]_2$ d) $Fe_3[Fe(CN)_6]_3$

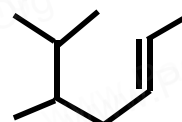10. Structure of the compound whose IUPAC name is 5,6 - dimethylhept - 2 - ene is
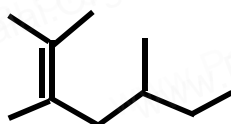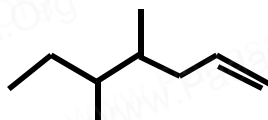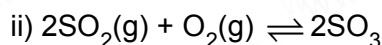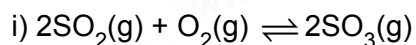
    a)   b)   c)   d) None of these

II. **Write any five of the following questions** 5 X 2 = 10

11. State Le-Chatelier principle.

12. Write the K_p and K_c for the following reactions :

i) $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ ii) $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3$

13. Write any two application of equilibrium constant

14. Write a note on homologous series.

15. Give the general formula for the following classes of organic compounds

   (a) Aliphatic monohydric alcohol   (b) Aliphatic ketones.

16. Give the structure for the following compound.

   (i) 3- ethyl - 2 methyl -1-pentene   (ii) 1,3,5- Trimethyl cyclohex - 1 -ene

II. **Write any five of the following questions** 5 X 3= 15

17. Derive the relation between K_P and K_C.

18. State law of mass action.

19. One mole of PCl_5 is heated in one litre closed container. If 0.6 mole of chlorine is found at equilibrium, calculate the value of equilibrium constant.

20. Give a brief description of the principles of Fractional distillation

21. Give the general characteristics of organic compounds?

22. Give the IUPAC names of the following compounds.

   a) $(CH_3)_2CH–CH_2–CH(CH_3)–CH(CH_3)_2$ b) $CH_3\text{-}O\text{-}CH_3$

   c)
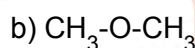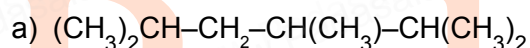
II. **Write any Three of the following questions** 3 X 5 = 15

23. Derive relationship between the K_c and K_p for formation of HI

24. 1 mol of CH_4,1 mole of CS_2 and 2 mol of H_2S are 2 mol of H_2 are mixed in a 500 ml flask. The equilibrium constant for the reaction $K_C = 4 \times 10^{-2}$ mol^2 lit^{-2}. In which direction will the reaction proceed to reach equilibrium ?

25. Derive Van't Hoff Equation .

26. 0.26g of an organic compound gave 0.039 g of water and 0.245 g of carbon dioxide on combustion. Calculate the percentage of C & H

27. Describe the reactions involved in the detection of nitrogen in an organic compound by Lassaigne method.

28. Explain paper chromatography .