

# CHEMISTRY

## NCERT - NCERT CHEMISTRY (GUJRATI)

### CHEMICAL EQUILIBRIUM - I

#### Problem

1. In the equilibrium reaction

$CO_{2(g)} + C_{(s)} \rightleftharpoons 2CO_{(g)}$  the partial

pressure of  $CO_2$  and  $CO$  are 0.78 atm and 1.22

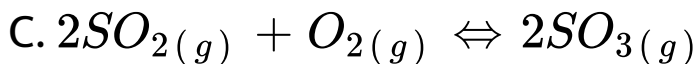
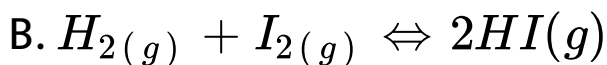
atm respectively at equilibrium. Calculate the equilibrium constant



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## Questions A Choose The Correct Answer

1. In which equilibrium pressure has no effect





**Answer:**



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2. For the equilibrium  $N_2O_{4(g)} \rightleftharpoons 2NO_{2(g)}$ ,

the  $K_p$  and  $K_c$  values are related as

A.  $K_p = K_c(RT)$

B.  $K_p = K_c(RT)^2$

C.  $K_p = K_c(RT)^{-1}$

$$D. K_p = K_c(RT)^{-2}$$

**Answer:**



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**3.** For endothermic equilibrium, increase in temperature changes the  $K_{eq}$  value as

A. No change

B. Increases

C. Decreases

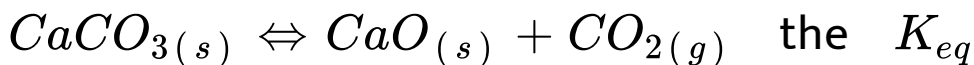
D. None of these

**Answer:**



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4. In the heterogenous equilibrium



value is given by

A. partial pressure of  $CO_2$

B. activity  $CaO$

C. activities of  $CaCO_3$

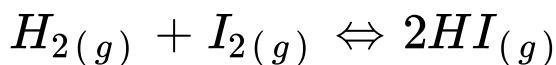
D.  $[CaO] / [CaCO_3]$ .

**Answer: partial pressure of  $CO_2$**



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5. For the equilibrium reaction



A.  $K_p = K_c$

B.  $K_p > K_c$

C.  $K_p < K_c$

D.  $K_p = 1 / K_c$

**Answer:**



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## Questions B Fill In The Blanks

1. In endothermic equilibrium reaction the increase in temperature \_\_\_\_\_



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2. When the reactant is a liquid which decomposes to gaseous products. Then the equilibrium is called as \_\_\_\_\_



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3. When reactants and products are in gaseous state, the equilibrium constant can be expressed in terms of



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4. Value of the equilibrium constant is \_\_\_\_\_ of the initial concentration of reactants.



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5. According to law of mass action, the rate of a chemical reaction is proportional to \_\_\_\_\_ of reactants.



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## Questions D Write In One Or Two Sentence

1. Write the  $K_p$  expression for



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2. Relate  $K_p$  and  $K_c$  when

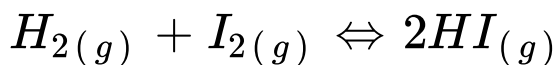
$$\Delta n = 0, \Delta n = 1, \Delta n = 2.0$$



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## Questions E Explain Briefly On The Following

1. Two moles of  $H_2$  and three moles of  $I_2$  are taken in  $2dm^3$  vessel and heated. If the equilibrium mixture contains 0.8 moles of HI, calculate  $K_p$  and  $K_c$  for the reaction



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2. At  $25^\circ C$ ,  $K_c$  for the reaction

$3C_2H_2(g) \rightleftharpoons C_6H_6(g)$  is 4.0. If the

equilibrium concentration of  $C_2H_2$  is 0.5 mol.

$lit^{-1}$ . What is the concentration of  $C_6H_6$ ?



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