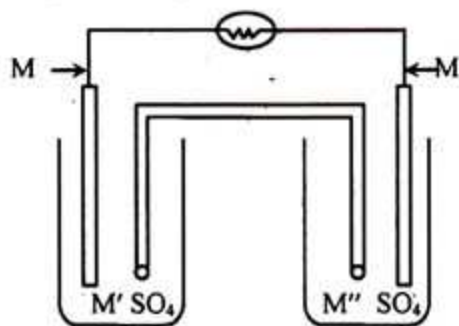


Chapter 8: Chemistry and Energy

1. A cell diagram are given below :



The bulb is on, if — [All Board-18]

- i. M' is more reactive than M''
- ii. both the solution are connected by the salt bridge
- iii. both M' and M'' react as reducing agent

Which one is correct?

2. Which one is the anode of dry cell? [All Board-18]
 - a) Zn
 - b) MnO₂
 - c) NH₄Cl
 - d) Graphite electrode
3. Which compound fulfill the demand of electrolyte in our body? [All Board-18]
 - a) O₂
 - b) H₂O
 - c) CO₂
 - d) NaCl
4. Which one is known as bio fuel? [D.B.-17]
 - a) CH₄
 - b) CH₃OH
 - c) CH₃CH₂OH
 - d) CH₃COOH
5. In which molecule of the following is required more energy to break the molecule? [R.B.-17]
 - a) H₂
 - b) O₂
 - c) Cl₂
 - d) HCl
6. How much energy in Joule is produced through the nuclear fission of 1 mole U-235? [C.B.-17]
 - a) 2.02×10^{13} J
 - b) 2×10^{13} J
 - c) 2.02×10^{23} J
 - d) 2×10^{23} J
7. How much energy is produced by nuclear fusion reaction of Uranium-235? [Ctg.B.-17]
 - a) 3.0×10^{23} J
 - b) 2.0×10^{23} J
 - c) 2.0×10^{13} J
 - d) 2.0×10^{21} J
8. $N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$; In this reaction value of ΔH is — [Ctg.B.-17]
 - a) -92 kJ
 - b) -180 kJ
 - c) -99 kJ
 - d) 180 kJ
9. How many Joule energy is obtain by burning one mole of methane gas? [Ctg.B.-17]
 - a) 891000 J
 - b) 789000 J
 - c) 981000 J
 - d) 978000 J
10. Which one is used in lithium battery? [Ctg.B.-17]
 - a) Hg₂O
 - b) LiSiO₂
 - c) LiCoO₂
 - d) Zn and MnO₂
11. What element of air has heat absorbing capacity high and can trap the heat? [Ctg.B.-17]
 - a) Oxygen
 - b) Nitrogen
 - c) Carbon dioxide
 - d) Water vapour
12. What does negatively charged ion do in a electrolytic cell? [Ctg.B.-17]
 - a) Releases electron to anode
 - b) Accepts electron from cathode
 - c) Releases electron to electrolyte
 - d) Deactivates the neutral compounds

13. $2H_2 + O_2 \longrightarrow 2H_2O$; where the bond energy of H – H, O = O and O – H is 435, 498 and 464 KJ/mole respectively. What is the value of ΔH in the above reaction? [S.B.-17]
 - a) -244 kJ
 - b) +244 kJ
 - c) +488 kJ
 - d) -488 kJ
14. How many electric potential is found from dry cell? [B.B.-17]
 - a) 1.0 volt
 - b) 1.5 volt
 - c) 2.0 volt
 - d) 2.5 volt
15. Which is present in photochemical smoke? [B.B.-17]
 - a) Carbon monoxide
 - b) Carbon dioxide
 - c) Phosphorus trioxide
 - d) Chlorine heptaoxide
16. How much energy in joule is produced from 1 mol ²³⁵U through nuclear fission reaction? [D.B.-16; C.B.-16; Ctg.B.-15]
 - a) 2.0×10^{13}
 - b) 2.5×10^{10}
 - c) 3.0×10^9
 - d) 2.0×10^{-13}
17. Which one is reduced in dry cell? [R.B.-16]
 - a) H₂O
 - b) MnO₂
 - c) ZnCl₂
 - d) Starch
18. Which one is electrolyte? [Dj.B.-16]
 - a) Molten Magnesium
 - b) Molten Calcium Oxide
 - c) Sugar
 - d) Ethanol
19. What is the bond energy of H – Cl? [C.B.-16]
 - a) 414 kJ
 - b) 431 kJ
 - c) 435 kJ
 - d) 464 kJ
20. Bond energy of A–A, B–B and A–B are 435, 244 and 431 KJmole⁻¹ respectively. What is the ΔH value of the reaction $A_2 + B_2 \longrightarrow 2AB$? [Ctg.B.-16]
 - a) +183kJ
 - b) -183kJ
 - c) -679kJ
 - d) +862kJ
21. Which gas is responsible for creating photochemical smog? [Ctg.B.-16]
 - a) CO
 - b) CO₂
 - c) SO₂
 - d) O₃
22. Which one has 431 kJ/mol bond energy? [S.B.-16]
 - a) H – H
 - b) C – H
 - c) O = O
 - d) H – Cl
23. What is the formula of sennabar? [S.B.-16]
 - a) Cu₂S
 - b) HgS
 - c) PbS
 - d) ZnS
24. Which one is oxidized in dry cell? [S.B.-16]
 - a) Zn
 - b) Cu
 - c) MnO₂
 - d) NH₄⁺
25. $H_2(g) + I_2(s) \rightleftharpoons 2HI(g)$; $\Delta H = 52kJ$. Which energy diagram is correct for the above reaction? [S.B.-16]

a

b

c

d

26. What are the fuels of fuel cell? [J.B.-16]

- (a) Methane, Ethane
- (b) Petrol
- (c) Ethanoic acid
- (d) Methanol, Ethanol

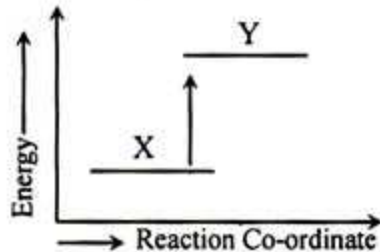
27. Which is used in lithium battery? [J.B.-16]

- (a) Hg_2O
- (b) CoO_2
- (c) PbO_2
- (d) MnO_2

28. Which is called green house gas? [B.B.-16]

- (a) SO_2
- (b) CO_2
- (c) NO_2
- (d) H_2S

29. Energy diagram of a reaction — [Dj.B.-17]



In this figure—

- i. X Product, Y Reactant, ΔH positive
- ii. X Reactant, Y Product, ΔH negative
- iii. X Reactant, Y product, ΔH positive

Which one is correct?

- (a) i
- (b) ii
- (c) iii
- (d) i and iii

30. $N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$.

It is understood from this reaction — [C.B.-17]

- i. It is an endothermic reaction
- ii. ΔH value of this reaction is positive
- iii. 180 KJ heat is absorbed during the reaction.

Which one of the following is correct?

- (a) i and ii
- (b) i and iii
- (c) ii and iii
- (d) i, ii and iii

31. Fuel of fuel cell — [J.B.-17]

- i. CH_3OH
- ii. C_2H_5OH
- iii. Petroleum

Which one is correct?

- (a) i and ii
- (b) i and iii
- (c) ii and iii
- (d) i, ii and iii

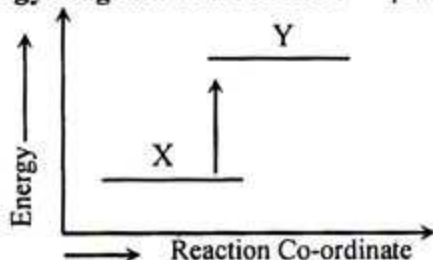
32. When partial combustion of fuel then produce — [B.B.-17]

- i. C
- ii. CO
- iii. CO_2

Which one of the following is correct?

- (a) i and ii
- (b) ii and iii
- (c) i and iii
- (d) i, ii and iii

33. Energy diagram of a reaction — [B.B.-17]



In this figure —

- i. X product, Y Reactant, ΔH Positive
- ii. X Reactant, Y Product, ΔH Negative

iii. X Reactant, Y product, ΔH Positive

Which one of the following is correct?

- (a) i
- (b) ii
- (c) iii
- (d) i and iii

34. Nuclear reaction — [R.B.-16]

- i. changes the number of proton
- ii. produces huge amount of heat
- iii. changes the nucleus of the atom

Which one is correct?

- (a) i and ii
- (b) i and iii
- (c) ii and iii
- (d) i, ii and iii

35. In nuclear reaction — [C.B.-16]

- i. heavy nucleus dissociates into smaller nucleus
- ii. heavy nucleus is formed by joining of smaller nucleus
- iii. electricity is produced by using produced heat energy

Which one is correct?

- (a) i and ii
- (b) ii and iii
- (c) i and iii
- (d) i, ii and iii

36. If an α particle gets out of radioactive isotope uranium — [Ctg.B.-16]

- i. Atomic number 2 is decreased
- ii. Nucleon number 2 is increased
- iii. Nucleon number is decreased

Which one of the following is correct?

- (a) i, ii
- (b) i, iii
- (c) ii, iii
- (d) i, ii and iii

37. $PCl_5(g) \xrightleftharpoons{\Delta} PCl_3(g) + Cl_2(g) \Delta H = 90 \text{ kJ/mol}$.

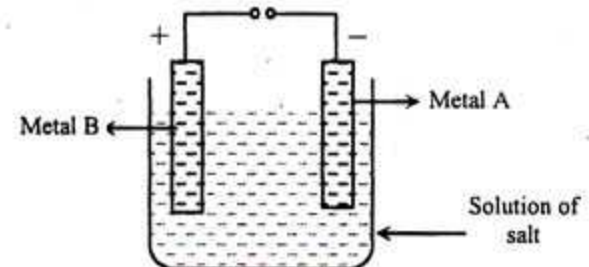
At the equilibrium of the reaction — [S.B.-16]

- i. reaction will be shifted to left when heat is decreased
- ii. in the reaction $E_1 > E_2$
- iii. reaction will be shifted to left when pressure is increased

Which one of the following is correct?

- (a) i, ii
- (b) i, iii
- (c) ii, iii
- (d) i, ii and iii

38.



For the electroplating process of above cell — [S.B.-16]

- i. Salt of B metal will be taken as electrolyte
- ii. B metal will be on A metal
- iii. Oxidation reaction will be occurred in Anode

Which one of the following is correct?

- (a) i, ii
- (b) ii, iii
- (c) i, iii
- (d) i, ii and iii

39. $2H_2(g) + O_2(g) \longrightarrow 2H_2O(g)$

In the reaction — [J.B.-16]

- i. H-H bond energy is 435 kJ mol^{-1}
- ii. O-H bond energy is 464 kJ mol^{-1}
- iii. on the reaction $\Delta H = -572 \text{ kJ}$

Which one is correct?

- (a) i and ii
- (b) i and iii
- (c) ii and iii
- (d) i, ii and iii