KHAJA BANDANAWAZ UNIVERSITY

FACULTY OF ENGINEERINGAND TECHNOLOGY, KALABURGI

DEPATMENT OF ENGINEERIG CHEMISTRY

QUESTION BANK FOR BE I AND II SEMESTER

Subject: Engineering Chemistry **Subject Code: 19KBCHE12/22**

TWO MARKS QUESTION

MODULE I

1. Define electrochemistry with an example
2. Define electrode potential & cell
3. DefineEMF & give the equation for EMF or E_{cell}
4. Define reference electrode with suitable example
5. Define concentration cell
6. Define battery with an examples

MODULE II

1. Define polymerization with an example
2. Define degree of polymerization
3. Define 1.Homopolymer 2.copolymer with example
4. What is number average molecular weight and weight average molecular weight
5. Define glass transition temperature (Tg)
6. Define conducting polymer
7. Define elasticity

MODULE III

1. What is corrosion ? give an example
2. Define electro chemical theory of corrosion
3. What is galvanic series
4. Define 1. Differential metal corrosion 2. Differential aeration
5. What is metal coating and cathodic protection
6. Define Sacrificial anode and impressed current method
7. Define metal finishing with suitable example
8. Define electroplating and elctrolessplating with example

MODULE IV

1. What is a fuel and give the examples
2. Define calorific value
3. What are high calorific value and lower calorific value
4. What is cracking
5. What is reformation of petrol
6. Define octane number &Cetane number
7. Whatis knocking
8. What are anti knocking agent
9. Define fuel cell with an example

MODULE V

1. What is boiler feed water
2. Define scale and sludge formation
3. What is priming and foaming
4. What is boiler corrosion
5. Define dissolved oxygen
6. Define biological oxygen demand
7. Define chemical oxygen demand
8. What is sewage treatment
9. What is softening of water
10. Define desalination
11. What is electro dialysis
12. Define nanomaterial with an example
13. Define Nano weir and Nano rods
14. What are carbon Nano tubes and fullerence

FOUR MARKS QUESTION

MODULE I

1. Explain in brief the classification of electrochemical cell with examples
2. Discuss in brief the construction and working of calomel electrode
3. Explain in brief about the glass electrode and give an equation of E_{cell} for glass electrode
4. Explain the measurement or determination of pH using glass electrode
5. Give an EMF equation for concentration cell
6. Explain the classification of electrochemical cell
7. Write a note batteries
8. Give the classification of batteries with an example

MODULE II

1. Explain the different types of polymerization
2. How molecular weight of polymer is determined
3. Discuss in brief the significance of Tg

MODULE III

1. Explain differential metal corrosion
2. Explain Waterline corrosion & Pitting corrosion
3. Explain galvanization process
4. Explain tinning process
5. Explain in brief the sacrificial anode and impressed current method
6. Explain electroplating of nickel (watts bath)
7. Explain in brief electro less plating of copper
8. Explain manufacture of PCB by electro less plating
9. Givethe difference between electro plating and electro less plating

MODULE IV

1. Give the classification of fuels
2. Explain the synthesis of petrol by Fischer tropsch process
3. Explain the reformation of petrol
4. Explain the mechanism knocking and harmful effects ofknocking
5. Explain about leaded petrol and unleaded petrol
6. Explain in brief about power alcohol and biodiesel
7. Write the difference between convention cell and fuel cell

MODULE V

1. Discuss in brief impurities of water
2. Discuss in brief boilercorrosion
3. Explain inbrief about priming and foaming and its prevention
4. Explain the desalination of sea water by reverse osmosis
5. Explain the desalination of water by electro dialysis process
6. Explain Nalgonda technique to purify water
7. Explain in briefthe classification ofnanomaterial's
8. Write a note on 1.carbon nano tube 2.fullerence 3. Nano rods 4. Nano wires 5. Dendrimers 6. Nano composites

SIX MARKS QUESTION/EIGHT MARKSQUESTION

MODULE I

1. Discuss the construction and working of a glass electrode and application
2. Derive Nernst equation for electrode potential
3. Explain construction working and application of nickel metal hydride battery
4. Describe any three battery characteristics
5. Explain primary secondary and reserve batteries with examples
6. Describe the construction working of lithium ion batteries mention its application
7. How will you determine the electrode potential of unknown electrode using calomel as reference electrode
8. Describe the construction and working of zinc air battery. Mention its application
9. Explain different types of electrodes
10. Explain the determination of pH of given solution using glass electrode
11. Numerical problems on concentration cell

MODULE II

1. Explain the free radical mechanism of addition polymerization by taking vinyl chloride as an example
2. Explain any three factors affecting tg
3. Describe the synthesis of 1. Polyurethane 2. Polycarbonate 3.PMMA or plexi glass
4. Explain the mechanism of conducting in polyaniline
5. Explain any three structure property relationship of polymers
6. Numerical problems on number average molecular weight and weight average molecular weight

MODULE III

1. Describe the electrochemical theory of corrosion taking rusting of iron as an example
2. Mention any six technological importance of metal finishing
3. Explain any two factors affecting the rate of corrosion

MODULE IV

1. Explain the experimental determination of calorific value of solid/liquid fuel using bomb calorimeter
2. Describe the construction and working of solid oxide fuel cell (SOFC) and mention its application
3. Explain the construction and working of methanol oxygen fuel cell
4. Describe fluidized bed catalytic cracking
5. Explain classification of fuel cell based on 1. Temperature 2. Fuel 3. Electrolyte
6. Numerical problems on determining calorific value of fuels

MODULE V

1. Explain softening of water by ion exchange method
2. Explain the activated sludge treatment of sewage water
3. Explain thesynthesis of nanomaterial's by sol gel technique
4. Illustrate the determination of COD of waste water sample
5. Explain size dependentproperties ofNanomaterial
6. Explain the synthesis of Nano material by chemical vapor deposition method
7. Explain wrenkler's method of determining dissolved oxygen
8. Explain the prevention of boiler corrosion
9. Illustrate the determination ofBOD of wastewater sample
10. Explain the synthesis of nanomaterial by gas condensation processing
11. Explain the synthesis of nanomaterial hydro thermal process
12. Numerical problems on COD & BOD