



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

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QUESTION BANK

Subject with Code :Engineering chemistry (16HS604)

Course & Branch: B.Tech (CIVIL,EEE,ME) **Year & Sem:** I-B.Tech & II-Sem

Regulation: R16

FIRST UNIT- ELECTROCHEMISTRY,CELL & CORROSION

1. A) Write a note on Galvanic cell with suitable examples? [5M]
B) Explain in detail about Lithium ion batteries? [5M]
2. A) Define batteries? Write a short notes on Ni-Cd batteries? [5M]
B) Discuss Hydrogen- Oxygen fuel cell. [5M]
3. Define fuel cell. Explain the construction, uses and disadvantages of Methanol-Oxygen fuel cell. [10M]
4. A) Write a note on sacrificial anodic protection? [5M]
B) Discuss about Impressed Current Cathodic protection ? [5M]
5. Define corrosion? Discuss in detail about electrochemical or wet corrosion? [10M]
6. Discuss various factors influencing the rate of corrosion ? [10M]
7. What are the consequences of corrosion ? Discuss in detail about chemical or dry corrosion. [10M]
8. A) What is electroplating ? [3M]
B) Explain electroplating of Nickel and copper ? [7M]
9. What is electroless plating ? Explain electroless plating of copper and nickel? [10M]
10. Describe Lead acid battery and give its significance. [10M]

SECOND UNIT - WATER AND ITS TREATMENT

1. A) Define temporary hardness and permanent hardness of water? [5M]
B) What are the units to express hardness of water? [5M]
2. What is the principle of EDTA method ? Describe the estimation of hardness by EDTA method. [10M]
3. A) How water gets hardness. Distinguish between hard water and soft water? [5M]
B) Explain Boiler corrosion in detail. [5M]
4. A) What is Priming and Foaming? [5M]
B) Explain scale and Sludge formation in boilers. How are they removed? [5M]
5. Describe the Zeolite or permutit process for softening of water. what are the advantages and disadvantages of zeolite process. [10M]

6. Describe the Ion exchange process for demineralization of water ?what are the advantages and disadvantages of ion exchange process ? Give its regeneration process. [10M]
7. Write a note on carbonate, calgon , phosphate ,colloidal,sodium aluminate conditioning. [10M]
8. A)Calculate temporary, permanent and total hardness of a sample of water containing $\text{Ca}(\text{HCO}_3)_2 = 40.5 \text{ mg/L}$; $\text{Mg}(\text{HCO}_3)_2 = 46.5 \text{ mg/L}$; $\text{MgSO}_4 = 27.6 \text{ mg/L}$; $\text{CaCl}_2 = 22.4 \text{ mg/L}$; $\text{CaSO}_4 = 32.1 \text{ mg/L}$. [5M]
B)Distinguish between Carbonate and non- carbonate hardness of water with examples. [5M]
9. A)0.5 g of CaCO_3 was dissolved in dil.HCl and diluted to 1000 ml. 50 ml of this solution required 48 ml of EDTA solution for titration. 50 ml of hard water sample required 15 ml of EDTA solution for titration. 50 ml of same water sample on boiling,filtering etc. required 10 ml of EDTA solution. Calculate the different kinds of hardness in ppm. [6M]
B) Why do we express hardness of water interms of CaCO_3 equivalent. [4M]
10. A)What are the disadvantages of hard water? [5M]
B)Which salts caused to temporary and permanent hardness? How it can be removed? [5M]

THIRD UNIT- FUEL TECHNOLOGY & LUBRICANTS

1. Write short notes on:
A) Producer gas & Water gas. [5M]
B) Units of Calorific value. [5M]
2. A) Explain Bergius process for the manufacture of synthetic petrol. [6M]
B) Discuss about Cetane number. [4M]
3. A) Write a note on synthetic petrol by Fischer-Tropsch process. [6M]
B) What are the characteristics of a good fuel? [4M]
4. Describe the method employed for the refining of petroleum with neat sketch[10M].
5. A) Explain the manufacture, advantages and disadvantages of power alcohol. [6M]
B) Define Octane Number and Knocking? [4M]
6. A) What are the advantages and Disadvantages of Liquid fuels and Gaseous fuels. [4M]
B) Natural gas and Biogas. [6M]
7. Discuss the mechanism of different types of lubrication. [10M]
8. Write short notes on:
A) Flash and Fire point[5M]
B) Aniline point & Neutralization number. [5M]
9. A) Define Lubricants? Discuss the important functions of Lubricants. [4M]
B) Cloud and pour point. [6M]
10. Define Viscosity? Determine the viscosity of lubricating oil by Redwood Viscometer [10M]

FOURTH UNIT- POLYMERS

1. A) Distinguish between Thermoplastics and thermosetting plastics? [5M]
B) Explain the procedures used in the processing of natural rubber. [5M]
2. What are conducting polymers? How are they synthesized? Write important engineering applications. [10M]
3. Write the preparation, properties and uses of
 - A) Polyurethane rubber
 - B) Nitrile rubber
 - C) Thiokol rubber
 - D) Buna-S rubber [10M]
4. Discuss the following
 - A) Silicones [5M]
 - B) Polyphosphazenes [5M]
5. Explain the following mechanism
 - A) Free radical addition polymerization. [5M]
 - B) Cationic addition polymerization. [5M]
6. Discuss the preparation, properties and uses of polyvinyl chloride and nylons. [10M]
7. A) Define the functions of various ingredients used in the compounding of rubber? [5M]
B) Discuss the preparation and uses of Bakelite. [5M]
8. Explain different types of Polymerization process with suitable examples? [10M]
9. Explain the following mechanism.
 - A) Anionic addition polymerization. [5M]
 - B) Co-ordination or Ziegler-Natta polymerization. [5M]
10. A) What is polymer? Discuss the Preparation, Properties and uses of Teflon. [5M]
B) Classify addition polymerization and condensation polymerization. [5M]

FIFTH UNIT- ENGINEERING MATERIALS

1. Define Cement. Explain detailed about manufacture of Portland Cement? [10M]
2. Explain thermal spalling, porosity, dimensional stability and thermal conductivity of the refractories? [10M]
3. A) What are Refractories? What are the characteristics of a good refractory? [5M]
B) Give the classification of refractories with examples. [5M]
4. Define refractories? Explain the refractoriness & RUL test? [10M]
5. A) Explain in detail about setting and hardening of portland cement? [5M]
B) Give an account of Chemical composition of Portland Cement? [5M]
6. Define Doping. Explain n- type semiconductor and p- type semiconductor. [10M]
7. Explain in detail about principles and application of semiconductors? [10M]
8. Discuss about quantum dots and their applications? [10M]
9. Discuss about Super conductors and their applications? [10M]
10. Write a short note on properties and applications of Fullerenes and carbon nanotubes. [10M]

UNIT-I
ELECTROCHEMISTRY, CELL & CORROSION

1. A galvanic cell converts_____ []
A) Electrical energy into Chemical energy
B) Chemical energy into Electrical energy
C) Electrical energy into Heat energy
D) Chemical energy into Heat energy
2. One of the most popular uses of galvanic cells are_____ []
A) Battery B) Electrolyte preparation C) Potentiostat D) None of these
3. Which of the following is a primary cell []
A) Mercury battery B) Lithium battery C) Daniel cell D) NICAD
4. _____is a secondary cell or battery []
A) NICAD B) Daniel cell C) Voltaic cell D) Laclanche cell
5. The cathode of Ni-Cd battery is composed of_____ []
A) Cadmium B) Nickel C) Paste of NiO(OH) D) Paste of Cd(OH)₂
6. A fuel cell converts_____ []
A) Chemical energy of fuel directly to electricity
B) Chemical energy of fuel directly to Heat
C) Chemical energy of fuel directly to Pressure
D) None
7. Lead-acid storage cell, the anode is made of _____ []
A) Lead dioxide B) Lead C) Both A&B D) None of these
8. Which of the following is proton exchange fuel cell []
A) H₂-O₂ B) Methanol-oxygen C) Phosphoric acid D) All of these
9. Hydrogen-Oxygen fuel cells are used as auxillary energy source in____ []
A) Trains B) Aeroplanes C) Space vehicle D) Automobile engine
10. What is the voltage produced by H₂-O₂ fuel cell, operating under standard conditions []
A) 1.0 V B) 1.23V C) 2.0V D) 0.5V
11. When iron/zinc is added to CuSO₄ solution, copper is precipitated, it is due to__ []
A) Oxidation of Cu²⁺ B) Hydrolysis of CuSO₄ C) Ionization of CuSO₄ D) Reduction of Cu²⁺
12. The tendency of an electrode to lose or gain electrons, when it is contact with its own ions is called_____ []
A) Hydration B) Oxidation C) Reduction D) Electrode Potential
13. The main purpose of salt bridge in the voltaic cell is _____ []
A) To maintain flow of electrons B) To maintain charge neutrality of solution
C) Barrier for electron transfer D) None of these
14. Corrosion is an example of_____ []

- A) Reduction B) Oxidation C) Electrolysis D) Electrolysis
15. The rusting of iron is catalysed by which of the following _____ []
A) O_2 B) Zn C) H^+ D) Fe
16. The rate of corrosion of iron in atmosphere depends on _____ []
A) Frequency of rainfall B) Humidity of air C) Intensity of atmosphere pollution
D) All
17. Electrochemical corrosion can occur only when _____ []
A) Air is in contact with metal B) Liquid medium is in contact with metal
C) Oxygen is in contact with metal D) None
18. Chemical corrosion always takes place in _____ []
A) Anodic and Cathodic area B) Anodic area C) Cathodic area D) Interior of metal
19. Which of the following metal oxide film is protective from corrosion__ []
A) Porous B) Non-porous C) Volatile D) unstable
20. Which type of the metal oxide film causes rapid and continuous corrosion_ []
A) Non-porous and Adherent B) Stable and Non-porous C) Porous or Volatile D) None of these
21. Electrochemical corrosion in acidic environment is carried with _____ []
A) O_2 evolution B) O_2 absorption C) H_2 evolution D) H_2 absorption
22. During galvanic corrosion, the most noble metal acts as _____ []
A) Anode as well as Cathode B) Cathode C) Anode D) Both B & C
23. Iron corrodes faster than aluminium due to _____ []
A) Al reacts with medium B) Al forms protective oxide film C) Al is lighter than Fe
D) None
24. Impure metal corrodes faster than pure metal due to _____ []
A) Homogeneity B) Heterogeneity C) Both D) None
25. When Zn and Cu alloy is placed in moisture environment, then undergo corrosion []
A) Cu B) Zn C) Zn-Cu D) None of these
26. In electrochemical corrosion, if the corrosion product is insoluble in the medium then the corrosion rate further _____ []
A) Increase B) Decrease C) Both D) None
27. Which of the following is volatile oxidation corrosion product of a metal _____ []
A) CuO B) Fe_2O_3 C) MoO_3 D) PbO
28. If the corrosion product is volatile, then the rate of corrosion of base metal will be _____ []
A) Decrease B) Increase C) Unchanged D) Not expected
29. The corrosive resistance of stainless steel is mainly due to passive nature of __metal []
A) Zn B) Sn C) Cr D) Fe
30. The chemical formula of rust _____ []
A) Fe_2O_3 B) FeO C) $Fe_2O_3 \cdot xH_2O$ D) Fe_2O_4
31. In Lead-acid storage cell, the cathode is made of _____ []

- A) Lead dioxide B) Lead C) Both A&B D) None of these
32. The cathode of Nicad battery is composed of _____ []
A) Nickel B) Cadmium C) Paste of NiO(OH) D) Paste of Cd(OH)₂
33. Lower is pH, Corrosion is _____ []
A) Greater B) Lower C) Constant D) None of the above
34. Smaller the Grain size, Corrosion is _____ []
A) Greater B) Lower C) Constant D) Does not affect
35. Process of Corrosion enhanced by _____ []
A) Air & Moisture B) Electrolytes in Water C) Metallic impurities D) All of the above
36. In oxygen concentration type corrosion, the corrosion occurs at _____ []
A) Less oxygenated part B) Cathode part C) More oxygenated part D) None of these
37. Wet corrosion, if the corrosion product is insoluble in the medium then the corrosion rate further _____ []
A) Increase B) Decrease C) Both D) None
38. Rusting is an example of _____ []
A) Reduction B) Oxidation C) Electrolysis D) Electrolysis
39. ____ Batteries the chemical reaction are reversed by passing direct electric current in opposite direction []
A) Primary B) Secondary C) Both A & B D) None of these
40. The rate of corrosion accelerates when the temperature of environment ____ []
A) Decreases B) Increases C) Both A & B D) None of these

UNIT-II
WATER AND ITS TREATMENT

1. Purest form of natural water is _____ []
A) Sea water B) River water C) Rain water D) Lake water
2. Blow down operation causes the removal of _____ []
A) Sludges B) Scales C) Both of them D) Cold water
3. Hard water is containing _____ []
A) Ca^{2+} and Mg^{2+} B) K^+ and Li^+ C) CO_2 and O_2 D) NO_2 and N_2O
4. Hardness of water is expressed in terms of equivalents of _____ []
A) $MgCO_3$ B) $CaCO_3$ C) Na_2CO_3 D) K_2CO_3
5. Full name of EDTA _____ []
A) Ethyne diamine tetra acetic acid B) Ethylene diamine tetra acetic acid
C) Ethylene di ammine tri acetic acid D) Ethylene diamine tetra aldehyde
6. The exhausted cation exchange resin can be regenerated by washing with _____ []
A) Dil. NaOH B) Dil. HCl C) Distilled water D) Brakish water
7. Calgon is a trade name given to _____ []
A) Sodium hexa Meta phosphate B) Magnesium phosphate
C) Calcium silicate D) Sodium sulphate
8. Loose and slimy precipitate formed within the boiler is called _____ []
A) Scale B) Sludge C) Priming D) Corrosion
9. Temporary hardness of water can be removed by _____ []
A) Filtration B) Screening C) Boiling D) Sedimentation
10. Water containing $CaCl_2$ and $MgSO_4$ is _____ []
A) Temporary hardness only B) Permanent hardness only C) Both of them D) Soft only
11. Priming and foaming in boilers produce steam of _____ []
A) Wet B) Dry C) Soft water D) None of these
12. The exhausted anion exchange resin can be regenerated by washing with _____ []
A) Dil. NaOH B) Dil. HCl C) Distilled water D) Brakish water
13. A hard ,sticky precipitate formed on the inner surface of the boiler is called _____ []
A) Sludge B) Oil C) Grease D) Scale
14. Which of the following is responsible for temporary hardness _____ []
A) $MgCl_2$ B) $CaSO_4$ C) $MgSO_4$ D) $Ca(HCO_3)_2$
15. The water which is fit for drink is called _____ []
A) Hard water B) Brakish water C) Potable water D) Moderately hardness
16. _____ indicator is used for determination of hardness by EDTA method []

- A) Methyl orange B) Methyl red C) EBT D) FSB-F
17. Water is hard, when it contains _____ []
 A) Alkalinity B) Acidity C) Dissolved K salts D) Dissolved Ca and Mg salts
18. Dissolved CO₂ in water can be removed by adding _____ []
 A) Ammonia B) NaCl C) HCl D) H₂SO₄
19. Estimation of hardness water by EDTA method is used to determine _____ []
 A) Total hardness B) Temporary hardness C) Permanent hardness D) All the above
20. Tannins and agar-agar are used for _____ []
 A) Phosphate conditioning B) Carbonate conditioning
 C) Colloidal conditioning D) Calgon conditioning
21. Sodium sulphite is used to remove which type of boiler trouble []
 A) Dissolved O₂ B) Dissolved CO₂ C) Scale D) Sludge
22. Best method of removing temporary hardness of water is []
 A) Ion exchange B) Permutit C) Lime-Soda D) Boiling
23. Ion exchange process using _____ resins []
 A) Anion exchange resin B) Cation exchange resin
 C) Both A & B D) Zeolite bed.
24. The process of wet steam is called _____ []
 A) Foaming B) Corrosion C) Priming D) Caustic embrittlement
25. The exhausted zeolite is regenerated by _____ []
 A) NaOH B) HCl C) NaCl D) All
26. _____ indicator is used for determining Hardness of water []
 A) EBT B) FSB-F C) Starch D) Diphenylamine
27. In EDTA method buffer used is _____ []
 A) Ammonical chloride B) Ammonia C) Both A & B D) None
28. Another name of priming and Foaming is _____ []
 A) Carry over B) Wet steam C) Both A & B D) None
29. Foaming can be avoided by adding antifoaming agent like _____ []
 A) NaAlO₂ B) NH₄OH C) Cotton seed oil D) NH₂-NH₂
30. Dissolved Oxygen can be removed from boiler feed water by adding _____ []
 A) Na₂S B) Na₂SO₃ C) NH₂-NH₂ D) All of these
31. Calgon conditioning is used for the removal of _____ scales []
 A) Ca(HCO₃)₂ B) CaSO₄ C) CaCl₂ D) Ca(NO₃)₂
32. A good amount of dissolved oxygen in water at room temperature and pressure is about _____ []
 A) 16 mg / L B) 10 mg / L C) 8mg /L D) 20 mg / L
33. Water which forms Scum with soap is called _____ []
 A) Hard water B) Soft water C) Distilled water D) Undistilled water
34. Hardness which can be removed by boiling is called _____ []
 A) Permanent hardness B) Temporary hardness C) Stiffness D) Toughness
35. Hardness which can't be removed by boiling is called _____ []
 A) Permanent hardness B) Temporary hardness C) Stiffness D) Toughness

36. Rain is an example of []
A) Perspiration B) Respiration C) Precipitation D) Evaporation
37. Which one of the following compounds does NOT cause hardness in water? []
A) Magnesium sulfate B) Magnesium chloride C) Sodium chloride D) Calcium chloride
38. ppm stands for ____ []
A) Parts per millimeter B) parts per meter c) parts per million D) None of these
39. P^H of neutral water is_ []
A) 7 B) More than 7 C) Less than 7 D) 14
40. Soft water gives _____ with soap []
A) Lather B) Oil C) Impurities D) Sludge

UNIT-III
FUEL TECHNOLOGY

1. Which of the following is a Natural gas_____ []
A) Petrol B) Oil gas C) Coal D) Coke
2. The calorific value of a gaseous fuel is expressed as_____ []
A) K.Cal/cm³ B) Cal/cm³ C) K.Cal/m³ D) K.Cal/cm
3. The catalyst used in Bergius process is_____ []
A) Nickel Oxalate B) Nickel Oleate C) Platinum D) Iron
4. The calorific value of Water gas is_____ []
A) 2800 K.Cal/m³ B) 1800 K.Cal/m³ C) 1300 K.Cal/m³ D) 2000 K.Cal/m³
5. Composition of Producer gas is_____ []
A) CO + H₂ B) CO + CH₄ C) CO + N₂ D) CH₄ + N₂
6. Gobar gas mainly contains_____ []
A) Propane B) Methane C) Butane D) Ethane
7. A good fuel should possess_____ []
A) High calorific value B) Low calorific value C) Moisture D) High ash
8. The boiling range of petrol fraction is found to be_____ []
A) 120-180⁰C B) 250-320⁰C C) 40-120⁰C D) 180-250⁰C
9. The highest ranking coal is_____ []
A) Anthracite B) Peat C) Lignite D) Bituminous
10. By alternatively passing air and steam on to the red hot coke we get____ []
A) Producer gas B) Water gas C) Biogas D) Oil gas
11. The calorific value of Producer gas is_____ []
A) 2800 K.Cal/m³ B) 1800 K.Cal/m³ C) 1300 K.Cal/m³ D) 2000 K.Cal/m³.
12. The total heat liberated by the complete combustion of one unit of fuel with oxygen is called_____ []
A) Calorific value B) Centigrade heat unit C) Calorie D) Kilocalorie
13. Which of the following fuel gases possess highest calorific gas_____ []
A) Water gas B) Producer gas C) Natural gas D) Coal gas
14. The boiling range of Diesel fraction is found to be_____ []
A) 120-180⁰C B) 250-320⁰C C) 40-120⁰C D) 180-250⁰C
15. An example of primary liquid fuel is_____ []
A) Diesel B) Kerosene C) Naphtha D) Petroleum
16. The calorific value of Biogas is_____ []
A) 200 K.Cal/m³ B) 1200 K.Cal/m³
C) 2000 K.Cal/m³ D) 1800 K.Cal/m³
17. The raw materials used in Bergius process for production of synthetic petrol are____ []
A) Coal and Hydrogen B) Coke and Oil
C) Water gas and Hydrogen D) Producer gas and Oil
18. For improving anti-knock property to petrol, it is mixed with_____ []
A) Lead bromide B) Allyl bromide
C) Tetra ethyl lead D) Tetra ethyl lead + Ethyl bromide

19. Which of the following is used as a jet engine fuel _____ []
A) LPG B) Power alcohol C) Kerosene D) Coal
20. Hydrocarbon content in gasoline is _____ []
A) C₁-C₄ B) C₅-C₉ C) C₁₅-C₂₃ D) C₂₀ above
21. Main constituent of LPG is _____ []
A) Propane B) Ethane C) Methane D) Butane
22. Composition of Water gas is _____ []
A) CO + H₂ B) CO + CH₄ C) CO + N₂ D) CH₄ + N₂
23. The boiling range of kerosene fraction is found to be _____ []
A) 120-180⁰C B) 250-320⁰C C) 40-120⁰C D) 180-250⁰C
24. Gobar gas mainly contains _____ []
A) Propane B) Methane C) Butane D) Ethane
25. The anti-knock value of iso-octane is fixed as _____ []
A) 0 B) 1 C) 100 D) 80
26. Ethyl alcohol can be manufactured by the following process _____ []
A) Oxidation B) Reduction
C) Fermentation D) None.
27. For a good lubricant, viscosity index should be _____ []
A) Low B) High C) Normal D) Unpredictable
28. Neutralisation number is also called _____ []
A) Acid number B) Base number C) Saponification number D) None of these
29. The oils with additives are called _____ []
A) Mixed oils B) Mineral oils C) Blended oils D) Natural oils
30. For determination of viscosity of thin lubricating oils _____ is used []
A) Redwood viscometer-2 B) Redwood viscometer-1
C) Viscometer D) Able apparatus
31. _____ type of a lubrication is involved in delicate machines like watches, sewing machines etc []
A) Fluid film B) Thin film C) extreme pressure D) None of these
32. Lubricant used to reduce the _____ []
A) Viscosity B) Friction C) Stability D) None
33. Lubricants for internal combustion engines should have _____ []
A) Low Viscosity B) High Viscosity Index C) Low Viscosity Index D) All of these
34. Which of the following possess least oiliness []
A) Mineral Oils B) Animal Oils C) Vegetable Oils D) Greases
35. Lubricants are mainly employed to reduce _____ []
A) Abrasion B) Corrosion C) Wearing D) All of these
36. The most suitable Lubricant for Watches and Clocks is _____ []
A) Bazel nut oil B) Grease C) Palm Oil D) Tallow Oil
37. The Viscosity of Liquids Changes with respect to the temperature, which is expressed in terms of _____ []

- A) Flash Point B) Fire Point C) Viscosity Index D) Pour Point
38. Which of the following oil is suitable for thick film lubrication []
A) Petroleum Oils B) Mineral Oils C) Vegetable Oils D) None of these
39. Which of the following possess least Oilness []
A) Mineral Oil B) Animal Oils C) Vegetable Oils D) Greases
40. Machines operating under high temperature and loads are lubricated by []
A) Synthetic Oils B) Mineral Oil C) Grease D) Solid Lubricant

UNIT-IV
POLYMERS

1. Polymer commonly used in textile industry _____ []
A) Rubber B) Nylon C) PVC D) Bakelite
2. Molecular mass of polymer is _____ []
A) Large B) Small C) Negligible D) Very small
3. Which of the following is an Elastomer _____ []
A) PVC B) Nylon C) Polystyrene D) Butyl rubber
4. The common catalyst used in co-ordination chain polymerization _____ []
A) Nickel B) Ziegler-Natta catalyst C) Zeolite D) Platinum
5. Polyurethane rubber is also known as _____ []
A) Isoprene B) Thiokol C) Neoprene D) Isocyanate rubber
6. Vulcanization of rubber is mainly done by addition of _____ []
A) Oxygen gas B) MgO₂ C) Sulphur D) ZnO
7. A good example of condensation polymerization is _____ []
A) Polythene B) Teflon C) Bakelite D) Polypropylene
8. Fluorine atoms are present in _____ []
A) Nylon B) Styrene C) Polythene D) Teflon
9. Bakelite is chemically called _____ []
A) Polybutylene B) Phenol-Formaldehyde resin
C) Polystyrene D) Polypropylene
10. Buna-S rubber is made up of the monomers _____ []
A) Butadiene + Phenol B) Butadiene + Styrene
C) Butadiene + Acrylonitrile D) Styrene + Phenol
11. Homopolymer is made up of _____ []
A) Different kinds of monomer units B) Same monomer units
C) Both of these D) None
12. An example of Thermoplastic is _____ []
A) Polystyrene B) PVC C) Polythene D) All of these
13. Phenol-Formaldehyde resin is commercially known as _____ []
A) Nylon B) PVC C) Bakelite D) Teflon
14. Which of the following is Synthetic rubber _____ []
A) PVC B) Nylon C) Polystyrene D) Butyl rubber
15. Nylon is a _____ []
A) Polyester B) Polyamide C) Vinyl polymer D) PVC
16. Nitrogen atoms are present in _____ []
A) Teflon B) Polythene C) Nylon D) Polypropylene
17. The process of vulcanization makes rubber _____ []
A) Soft B) Hard C) Elastic D) Swells oils
18. Natural rubber is made up of _____ []
A) Cis-Polyisoprene B) Trans-Polyisoprene

- C) Cis-Butadiene D) Cis-Butadiene
19. Plasticizers are materials which are added to resin to increase their _____ []
A) Strength B) Corrosion resistance
C) Stability D) Plasticity and flexibility
20. Styrene rubber is produced by co-polymerization of _____ []
A) Butadiene + Phenol B) Butadiene + Styrene
C) Butadiene + Acrylonitrile D) Styrene + Phenol
21. Hetero polymer is made up of _____ []
A) Different kinds of monomer units B) Same monomer units
C) Both of these D) None
22. An Example of Condensation -polymer is _____ []
A) PVC B) Polythene C) Terylene D) Teflon
23. Bakelite is made up of _____ []
A) Addition polymerization B) Co- polymerization
C) Condensation polymerization D) None
24. An example of thermosetting plastic is _____ []
A) Polystyrene B) PVC C) Bakelite D) All of these
25. The number of bonding sites in a monomer is known as _____ []
A) Degree of polymerization B) Tacticity C) Functionality D) Silicones
26. Vulcanization process involves the formation of _____ []
A) Vander walls forces B) Covalent bonds
C) Ionic bond D) All of the above
27. Buna- S rubber is also known as _____ []
A) Styrene-butadiene B) Nytrile C) Thikol D) Vulcanized rubber
28. Thiokol rubber is made up of the monomers _____ []
A) 1,2-Dichloroethane and Sodium polysulphide B) Thio alcohol + Vinyl chloride
C) Thio alcohol + Sodium poly sulphide D) None
29. Natural rubber is a polymer of _____ []
A) Isoprene B) Vinyl chloride C) Styrene D) Propylene
30. Which one of the following is an inorganic polymer _____ []
A) Terylene B) Silicone rubber
C) Buna-S D) Isocyanate rubber
31. The number of repeating units present in a polymer chain is known a _____ []
A) Degree of polymerisation B) Functionality
C) Tacticity D) Tetramers
32. An Example of co-polymer is _____ []
A) PVC B) Polythene C) Teflon D) Buna-S
33. Tetraflouro ethylene is the monomer of _____ []
A) Nylon-6,6 B) Polythene C) Teflon D) PVC
34. An example of Thermoplastic is _____ []
A) Polystyrene B) PVC C) Polythene D) All of these
35. The number of bonding sites in a monomer is known as _____ []
A) Degree of polymerization B) Tacticity C) Functionality D) Silicones

36. Which of the following has cross-links _____ []
A) PVC B) Polythene C) Phenol-Formaldehyde resin D) Teflon
37. The repeating units present in a polymer chain are known a _____ []
A) Monomer B) Dimers C) Polymer D) Tetramers
38. Polyurethane rubber is made up of the monomers _____ []
A) Phenol + Formaldehyde B) Phenol + Styrene
C) Ethylene glycol + Ethylene diisocyanate D) Ethylene glycol + Styrene
39. Natural rubber is a polymer of _____ []
A) Isoprene B) Vinyl chloride C) Styrene D) Propylene
40. Buna-N rubber is made up of the monomers _____ []
A) Butadiene + Phenol B) Butadiene + Styrene
C) Butadiene + Acrylonitrile D) Styrene + Phenol

UNIT-V
CHEMISTRY OF ENGINEERING
MATERIALS

1. Which of the following is a character of refractory []
A) It should resist high temperature B) It should be chemically inert
C) Resist abrasion action D) All
2. A refractory material generally obtained from bauxite is []
A) Fire clay B) Dolomite C) Chromite D) Alumina
3. Silica is an example of []
A) Basic refractory B) Acidic refractory C) Neutral refractory D) None
4. A good refractory should have _____thermal expansion []
A) High B) Less C) Both A&B D) None of these
5. Breaking, Cracking, Fracturing of a refractory under high temperature is called []
A) Thermal spalling B) Thermal expansion C) Fusion D) All
6. The resistivity of a super conductor is []
A) 0 B) Finite C) Infinite D) None
7. Which of the following is a basic refractory []
A) Silica B) Alumina C) Graphite D) Calcium oxide
8. Refractory fails due to []
A) Rapid changes in temperature B) Over firing
C) Due to dimensional changes D) All
9. Refractoriness of a refractory can be measured by []
A) Pyrometric cone test B) Acidic test C) Penetration test D) None
10. Porosity of a refractory _____ the abrasion resistance []
A) Increase B) Decreases C) No change D) None
11. The main raw materials required for the manufacture of Portland cement are []
A) Lime stone + Clay B) Lime stone + Sand C) Alumina + Sand D) Clay + Sand
12. The resistivity of a super conductor is []
A) 0 B) Finite C) Infinite D) None
13. An p-type Si is obtained by doping pure Si with []
A) Pentavalent impurity B) Tetravalent impurity C) Trivalent impurity D) All
14. Which of the following is a acidic refractory []
A) CaO B) Na₂CO₃ C) MgO D) SiO₂
15. A good refractory material must []
A) Possess low softening temperature B) Undergo spalling
C) Be chemically inert D) Contain high thermal expansion
16. Most important characteristic of a refractory material is its []
A) Strength B) Refractoriness C) Spalling D) All
17. Higher the pyrometric cone equivalent is the softening temperature of a refractory []

- A) Lower B) Higher C) Zero D) Moderate
18. The chemical formula for lime stone is []
A) MgCO_3 B) CaCO_3 C) Na_2CO_3 D) Li_2CO
19. Any material which can withstand high temperature without softening from deformation is called []
A) Insulating material B) Refractory C) Lubricant D) Fuel
20. Which of the following is a neutral refractory []
A) Silica B) Alumina C) Graphite D) Calcium oxide
21. In basic environment preferably refractory should not be []
A) Basic B) Acidic C) Neutral D) None
22. Porosity of a refractory _____ the abrasion resistance []
A) Increase B) Decreases C) No change D) None
23. The chemical formula for lime stone is []
A) MgCO_3 B) CaCO_3 C) Na_2CO_3 D) Li_2CO_3
24. The conductivity of a super conductor is []
A) 0 B) Finite C) Infinite D) None
25. Which of the following nanomaterial show effective catalytic activity for methenation of $\text{CO} + \text{H}_2$ at low temperature []
A) Palladium (10 nm) B) Palladium colloids C) MoS_2 D) Rhodium Hydro sols
26. Fullerenes and Dendrimers are considered as _____ in Nanoscale []
A) one dimensional B) Three dimensional C) Two dimensional D) None of these
27. Nanowires and Nanotubes are _____ in Nanoscale []
A) one dimensional B) Three dimensional C) Two dimensional D) None of these
28. The term Nano Stands for _____ []
A) 1 Billionth of centimeter B) 1 Billionth of Metre C) 1 Billionth of Foot D) None of these
29. Which of the following important properties of Nanomaterials differ significantly from other materials []
A) Increase Surface area B) Decrease Surface area C) Increase Constant size D) None of these
30. Which of the following nanomaterial act as sensors of gases like NO_2 and NH_3 on the basis of increasing electrical conductivity []
A) Carbon Nanotubes B) Thin film C) Zinc Oxide D) Palladium
31. Which of the following nano wires show Photoluminescence []
A) Zinc Oxide B) Semi Conductor C) Silicon D) Carbon
32. In Nanomaterials, atoms or molecules are fabricated in nanoscale range []
A) 1-10 nm B) 100-120 nm C) 10-20 nm D) 20-30 nm
33. Who is the father of Nanomaterial Science []
A) Grahambel B) Dalton C) Richard Feynmen D) Newton
34. Which of the following is considered as one dimensional in the nanoscale []
A) Quantum Dots B) Carbon Nanotubes C) Fullerenes D) Thin films
35. A Nanocrystal of 10 nm in size has approximately _____ of atoms on the surface []
A) 80% B) 20% C) 15% D) 5%
36. Zinc oxide Nanowires exhibits at room temperature _____ []
A) Magnetic Materials B) UV Laser C) Storage device D) Super Conductors

37. Which of the following important properties of nanomaterials differ significantly from other material []
A) Increase surface area B) Decrease surface area C) Increase constant size
D) None of these
38. The Nano tubes of MoS_2 and CoS_2 are used as []
A) Semi Conductors B) Insulators C) Storage device D) Solid Lubricants
39. When Lime is exposed to air, it slowly abosorbs []
A) Nitrogen B) Oxygen C) Carbon di oxide D) Sulphur
40. The Nanotubes of MoS_2 and WS_2 used as _____ []
A) Solid lubricants B) Super conductors C) Semi conductors D) Catalyst