

Shivaji University, Kolhapur
Question Bank For Mar 2022 (Summer) Examination
Subject Code: 73302
Subject Name: Industrial Chemistry (Paper VI)

Q. 1 (a). Answer the following in one sentence

5 M

1. What is the long form of MSDS?
2. Name the steps involved in chemical process.
3. State law of conservation of mass.
4. Which are the raw materials obtained from lithosphere?
5. What is mean by block diagram?
6. Define the term normality.
7. Define the term molarity.
8. What is the long form of unit ppm?
9. What is the long form of unit ppb?
10. Define the term molality.
11. Define the term ore.
12. What is size enlargement
13. What is the use of condensers?
14. Give the types of distillation.
15. What is mean by Gangue?
16. Define the term metallurgy.
17. What are the types of corrosion.
18. What is electrochemical series?
19. Who introduced electrochemical theory?
20. What is hydrogen over voltage?
21. Enlist the methods used for application of metallic coatings
22. Give the equation for cathode efficiency.
23. Give the parts of electroplating equipment.

24. Which anode is used for electroplating of chromium?
25. State first law of electrolysis.
26. What is electroplating?
27. Which fillers are used in manufacture of paper?
28. Give the methods of pulp manufacturing?
29. Which chemicals are used for sulphate pulping?
30. Sulphate pulping is also known as?
31. What is detergent?
32. What is soap?
33. Give the list of raw materials used for soap manufacturing.
34. What are the type of soaps?
35. Give the types of detergents.
36. Give the chemical name of Deriphat.
37. What is mean by zwitterionic detergent.
38. Which alkali is used in soft soap preparation?
39. Which alkali is used in hard soap preparation?
40. Why soap does not give leather in hard water?

Q. 1 (b). Select the correct alternative and rewrite the sentence again

5 M

- 1) The meaning of MSDS is....
 - a) Material Safety Data Sheet
 - b) Method Safety Data Sheet
 - c) Materials Standard Data Sheet
 - d) Method Standard Data Sheet

- 2) The desired product in industrial chemistry is produced at
 - a) small scale
 - b) low scale
 - c) large scale
 - d) bottom scale

- 3) The industrial gases N_2 , O_2 , Ne, Ar, Kr, Xe are the raw materials obtained from...
 - a) atmosphere
 - b) hydrosphere
 - c) lithosphere
 - d) biosphere

- 4) Which of the following law is applied in mass balance equation?
 - a) Einstein's law
 - b) First law of Newton
 - c) Faraday's law
 - d) Law of conservation of mass

- 5) Which of the following is diacidic acid
 - a) HCl
 - b) H_2SO_4
 - c) HNO_3
 - d) HBr

- 6) The number of.....of solute present in one dm^3 of solution is known as molarity
 - a) gram equivalents
 - b) equivalents
 - c) moles
 - d) grams

- 7) is the ratio of weight of the component to the total weight of all the components present in the solution.
 - a) mole fraction
 - b) weight fraction
 - c) molarity
 - d) normality

- 8) The homogeneous mixture of two or more components is called as
 - a) solute
 - b) solution
 - c) solvent
 - d) concentration

- 9) The reboiler is also called.....
 - a) distillation flask
 - b) condenser
 - c) receiver
 - d) none of the above

- 10) The principle involved in ball mill is
 - a) compaction
 - b) compression
 - c) agglomeration
 - d) impact

- 11) In Jaw crusher volume or cavity between jaws is called.....
 - a) empty space
 - b) crushing chamber
 - c) fixed jaw
 - d) open space

12) Agglomeration results into....

- a) nucleation
- b) compaction
- c) size enlargement
- d) pressing

13) Liquids boiling at above 150 °C will be distilled using.....condenser

- a) Liebig
- b) Friedrich
- c) coil
- d) air condenser

14) The devices used in distillation to cool the emerging vapour is called as

- a) reboiler
- b) condenser
- c) fractionating column
- d) receiver

15) Froth floatation process is used to concentrate.....ore.

- a) oxide
- b) sulphide
- c) magnetic
- d) non magnetic

16) Distillation occurs at lower than the boiling point of liquid in.....

- a) vacuum
- b) steam
- c) spinning band
- d) both a & b

17) The thickness of corrosion layer less than 300 Å is called as....

- a) film
- b) scale
- c) layer
- d) none of these

18) will act as cathode in presence of Fe.

- a) Cr
- b) Cu
- c) Mg
- d) Ca

19) The standard reduction electrode potential of Zn is iron

- a) equal to
- b) less than
- c) greater than
- d) none of these

20) Severe corrosion takes place when percentage of humidity is.....

- a) below 50%
- b) about 50 to 80%
- c) above 80%
- d) all of the above

21) According to 'differential aeration principle' part of the metal surface having least oxygenated area acts as

- a) a cathode
- b) an anode
- c) a galvanic cell
- d) an electrode

22) In 'Galvanisation' the iron is coated by.....metal.

- a) Cr
- b) Zn
- c) Al
- d) Ni

23) In some methods, behaviour of solution is decided by the extent to which the cathode is covered and it is known as....

- a) cathode power
- b) covering power
- c) anode power
- d) electricity

24) If cathode efficiency > anode efficiency, the bath becomes in metal content.

- a) rich
- b) poor
- c) equal
- d) none of the above

25) Pulp is manufactured by.... process.

- a) chemical
- b) mechanical
- c) physical
- d) both a & b

26) Sulphate pulp is prepared by.....process

- a) acid
- b) alkaline
- c) neutral
- d) all of the above

27) process is used to obtain high grade paper.

- a) chemical
- b) mechanical
- c) physical
- d) none of the above

28) In craft pulping for digestion chemicals used are.....

- a) Na_2SO_4 & NaOH
- b) MgO and NaOH
- c) Na_2CO_3 and NaOH
- d) both a & c

29) The fillers are....compounds

- a) inorganic
- b) naturally occurring
- c) organic
- d) both a & b

30) The natural fillers are....

- a) clay
- b) MgO
- c) NaOH
- d) Na_2CO_3

31) Sizing is done to provide...

- a) resistance to penetration by liquid
- b) penetration by liquid
- c) proper body to the paper
- d) proper colour to the paper

32) For preparation of snow white paper..... dye is added

- a) acidic
- b) basic
- c) direct
- d) ultramarine

33) Soap forms curd/scum in hard water by reacting acylate ion with ...

- a) Na^+
- b) Ca^{+2} or Mg^{+2}
- c) K^+
- d) Li^+

34) Talc and magnesium carbonate are used as

- a) optical brightener
- b) fixative
- c) colouring pigment
- d) fillers

35) Cleansing action of soap/detergent is due to its..... nature.

- a) hydrophilic
- b) hydrophobic
- c) amphoteric
- d) amphipathic

36) The detergents also called as invert soaps contain...surfactants

- a) cationic
- b) anionic
- c) neutral
- d) zwitterionic

37) The change that transforms kettle soap mass into neat soap is called...

- a) graining
- b) boiling
- c) pitching and settling
- d) cooling

38) is a example of zwitterionic surfactant.

- a) Deriphat
- b) teepol
- c) Igepon-T
- d) both a & b

39) Linear alkyl benzenes are used to make surfactant.

- a) SLS
- b) LAS
- c) AOS
- d) none of these

40) Blood or egg stains can be removed by detergents containing....

- a) borax
- b) antioxidant
- c) enzymes
- d) silicates

Q. 2. Attempt any TWO of the following

(20)

1. Explain the following terms in detail-
 - i. Normality
 - ii. Molarity
 - iii. Molality
 - iv. Mole fraction
 - v. Parts per million (ppm)
2. Explain the mass balance equation procedure with suitable example.
3. What is industrial Chemistry? Write difference between Classical Chemistry and Industrial Chemistry.
4. What is block diagram? Describe block diagram of sulfuric acid.
5. What is distillation? Mention different types of distillation. Explain any one of them.
6. Give the purpose of size enlargement. Discuss pellet mill.
7. State the principle used in Jaw crusher. Explain Jaw crusher with neat labelled diagram.
8. Explain in detail the corrosion of metal on the basis of electrochemical theory.
9. Write note on the basic principles of electroplating.
10. Explain in detail throwing power and covering power in electroplating.
11. Explain any five methods of protection of metals from Corrosion.
12. Describe briefly electroplating of chromium
13. Explain in brief the manufacture process of paper.
14. Explain chemical and mechanical process used in pulp industry
15. What are the different problems of paper industry? Explain in brief features of good paper industry.
16. Explain in detail the manufacture of soap with neat label diagram.
17. Explain in brief the preparation and uses of Deriphath.
18. Write main raw materials used in soap manufacture process and explain it.
19. Explain in detail types of soaps
20. Give brief note on principle surfactants used in detergent manufacture.

Q. 3. Attempt any FOUR of the following

(20)

1. Give the comparison between classical and industrial chemistry.
2. Describe block diagram with suitable example.
3. What is the purpose of mass balance calculations?
4. Give the mass balance equation procedure in brief.
5. Define the following terms.
 - a) Normality
 - b) Molarity
 - c) Molality
 - d) Parts per Million Solution
 - e) Parts per Billion Solution
6. Describe the following
 - a) Mole fraction
 - b) Weight fraction
 - c) Percentage composition by weight by volume
7. 25cm^3 of caustic soda of unknown strength were found by titration to neutralize 24cm^3 of 0.1N HCl solution. Find the normality of caustic soda and strength in kg per dm^3 .
8. 6 g of urea is dissolved in 500 g of water. Calculate percentage by weight of urea in the solution.
9. 25 ml of 3.0 M NaOH are mixed with 75ml of 4.0 M NaOH. If the volume are additive, calculate the molarity of final mixture of mixed solution.
10. Draw a schematic diagram of jaw crusher with suitable labels and describe it in short.
11. What are the purposes of size enlargement i.e. agglomeration.
12. Describe in short magnetic particles separation method.
13. Draw schematic diagram of distillation unit still with suitable label and give the applications of distillation.
14. Draw a schematic diagram of vacuum distillation with suitable labels.
15. Give the various types of condenser.
16. What is corrosion? Give the types of corrosion.
17. What is electrochemical theory of corrosion?
18. Give the examples of due to differential aeration.
19. Give any one of the method for protection of metal from corrosion.
20. Describe the metallic coating method for metal protection from corrosion.

21. Give the faraday's law of electrolysis.
22. Give the applications of chromium electroplating.
23. What is the anodizing (anodic oxidation of metal)? Give the applications of anodizing.
24. Give short note on chemical process used in pulping.
25. Draw a schematic diagram of Hollander and describe its construction.
26. What are the problems of paper industry?
27. Explain the features of good paper industry.
28. What are the types of soap?
29. Describe the cleansing action of soap.
30. Give the uses of teepol.
31. What are the advantages and disadvantages of soap?
32. What are the advantages and disadvantages of detergent?
33. Draw a schematic diagram of vertical kettle. Give the advantages and disadvantages of hot process for soap.
34. Write a short note on additives in soap.
35. Write a short note on soap and saponification.
