Class: CH 2 G

Subject: Fundamentals of Chemical Engineering

Subject code: 17206

Chapter 1 (20 marks)

<u>3 marks question</u>

1. Name any two 1. Petrochemical Industries 2. Pharmaceutical Industries
2. Define and give the unit in SI of the following
   a. Force   b. Density
3. Define the following
   a. Pressure   b. Energy
4. Convert 100Kg/hr into gm/sec
5. Define 1) molarity 2) molality 3) Normality

<u>4 marks question</u>
6. Convert the following
   a) 1.2 Kg/m^3 into gm/cm^3
   b) 200 Btu/hr into cal/sec
7. A mixture contains 200 gm NaOH and 300 gm KOH. Express the composition of mixture by weight and by mole (at wt of Na=23, O=16,H=1, K=39)
8. Calculate gram moles of H_2SO_4 present in 200 gram H_2SO_4. (At wt of S=32)
9. 100 gm NaOH is dissolved in water to prepare 1200 ml solution. Calculate
   a) Molarity and b) Normality of the solution
10. 10. Define a) partial pressure b) pure component volume
11. Define a) Daltons law b) Amagat's law

Chapter 2(30 marks)

<u>3 marks question</u>

12. Explain sedimentation

13. Explain filtration with a labeled diagram

14. What is size reduction? What are the advantages of size reduction?

15. What are the principles by which size reduction is done? Give one industrial equipment each using these principles.

16. What is screening? Define a)mesh   b) oversize particle

<u>4 marks question</u>

17. What are the various principles by which solid mixture can be separated? Name the equipment used for the separation.

18. Explain gas absorption with an example.

19. Define sensible heat and latent heat.

20. Explain distillation in detail as a mass and heat transfer operation.

21. Explain different modes of heat transfer with examples.

22. Differentiate between sedimentation and filtration.

23. What is drying? Explain with a diagram.

24. Draw the symbol of a) pack column b) jaw crusher c)ball mill

Class: CH 2 G

Subject: Fundamentals of Chemical Engineering

Subject code: 17206

<u>Chapter 3(weightage=12)</u>

<u>3 marks question</u>

1. Explain with example Esterification

2. What in nitration reaction? Write down the reaction involved.

3. Explain with chemical reaction sulfonation.

4. What is nitrating mixture? What is its use?

4 marks question

5. Explain oxidation and reduction with chemical reactions

6. What is cracking? Write down a reaction for the same.

7. Explain hydration reaction with example

8. Explain hydrogenation reaction with example

9. Explain chlorination in detail.

Chapter 4(weightage=16)

1. Define % conversion and % yield

2. Write down the chemical reactions involved in the manufacture of nitric acid.

3. Explain flow diagram.

4 marks question

4. Draw a flow sheet for the manufacture of sulphuric acid.

5. Explain the process description for the manufacture of sulphuric acid.

6. Draw a flow sheet for the manufacture of nitric acid.

7. Explain the process description for the manufacture of nitric acid.

8. Write down the chemical reactions involved in the manufacture of sulphuric acid.

9. Give any four uses of sulfuric acid

Chapter 5(weightage=22)

3 marks question

1. Differentiate between density and specific gravity of a substance.

2. Define viscosity of liquid. Give its unit. Name the equipment used to find out viscosity of liquid.

3. Name the protective devices used for a)face b) eyes c)head

4 marks question

4. Explain the construction of rotameter with a neat labeled diagram.

5. With a neat diagram explain the working of mercury thermometer

6. With a neat diagram explain the construction and working of U tube manometer.

7.Explain the construction of mercury thermometer.

8. Explain the working of Float and tape method.