

- Q.27 Explain in brief the manufacturing process of ammonia.
- Q.28 Discuss the major engineering problems related to manufacturing of sulfuric acid.
- Q.29 Explain in brief the dry process for manufacturing of Portland cement.
- Q.30 Discuss the manufacturing steps for paper making using fourdrinier machine .
- Q.31 Explain in brief the different additives used in the manufacturing of detergents.
- Q.32 Discuss in brief the carbonation process related to sugar industry.
- Q.33 Explain in brief the various raw materials used in the cement industry.
- Q.34 Draw the schematic representation of any five equipment's used in chemical process industry.
- Q.35 Discuss in brief the manufacturing process of Beer.

#### Section-D

**Note: Long answer type questions. Attempt any two questions out of three Questions. (2x10=20)**

- Q.36 Explain the manufacturing process of urea along with flow sheet, uses and major engineering problems.
- Q.37 Define fermentation. Explain process for manufacturing of ethanol by fermentation of molasses with flow sheet.
- Q.38 Write short note on any two of following:
- Size reduction equipment
  - Glycerine
  - Triple super phosphate
  - Chemical pulping

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#### 4th Sem. Branch: Chemical Sub : Chemical Technology

Time : 3 Hrs.

M.M. : 100

#### SECTION-A

**Note: Multiple choice Questions. All Questions are compulsory. (10x1=10)**

- Q.1 Which of the following can be used as bleaching agent.
- Chlorine
  - Hydrogen peroxide
  - Calcium hypochlorite
  - All of the above
- Q.2 Which of the following is **NOT** a type of flow sheet used in chemical industry?
- Block diagram
  - PID diagram
  - Flow chart
  - Utility line diagram
- Q.3 Which of the following is an example of fats?
- Glyceryl trioleate
  - Vegetable ghee
  - Coconut oil
  - Groundnut oil
- Q.4 The catalyst is
- Which speed up the reaction
  - Which does not get involve in the reaction
  - Both A & B
  - None of the above

- Q.5 Contact process is used for manufacturing of  
 a) Phosphoric acid      b) Nitric acid  
 c) Hydrochloride acid    d) Sulphuric acid
- Q.6 Vegetable glee is manufactured by  
 a) Hydrogenation  
 b) Saponification  
 c) Oxidation polymerization  
 d) Reduction Polymerization
- Q.7 Wine is obtained by alcoholic fermentation of  
 a) Rice                      b) Wheat  
 c) Grapes                  d) Barley
- Q.8 Catalyst used in Haber process for ammonia production is  
 a) Reduced iron oxide    b) Nickel  
 c) Vanadium pentoxide   d) Silica gel
- Q.9 Soap does not form leather with  
 a) Soft water              b) Hard water  
 c) Distilled water        d) None of these
- Q.10 Action of phosphoric acid on rock phosphate produces.  
 a) Triple super phosphates  
 b) Gypsum  
 c) Super phosphate  
 d) Phosphoric acid

### Section-B

**Note: Objective type questions. All questions are compulsory. (10x1=10)**

- Q.11 What is Semi - Chemical pulping?
- Q.12 Draw the symbol used for pump in chemical industry flow sheet.
- Q.13 Define black liquor.
- Q.14 Write full form of NPK.
- Q.15 Mention one use of compressor in chemical industry.
- Q.16 Name any two types of cement.
- Q.17 Write any one use of ammonium nitrate.
- Q.18 \_\_\_\_\_ (Lime/Iron Oxide) compound gives the colour to the cement.
- Q.19 Define detergent.
- Q.20 Write the formula of glycerine.

### Section-C

**Note: Short answer type Questions. Attempt any twelve questions out of fifteen Questions. (12x5=60)**

- Q.21 Explain in brief utility line diagram.
- Q.22 Differentiate between sulphate and sulphite pulping process.
- Q.23 Explain in brief solvent extraction method of vegetable oils.
- Q.24 Explain in brief manufacturing process of dextrin by starch hydrolysis method.
- Q.25 Draw a well labelled flow sheet of manufacturing process of ammonium phosphate.
- Q.26 Discuss the properties and uses of single super phosphate.