

- 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. $(2 \times 10 = 20)$

- 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.

 - a) Chlorine
 - b) Hydrogen peroxide
 - c) Calcium hypochlorite
 - d) All of the above

Q.2 Which of the following is **NOT** a type of flow sheet used in chemical industry?

 - a) Block diagram
 - b) PID diagram
 - c) Flow chart
 - d) Utility line diagram

Q.3 Which of the following is an example of fats?

 - a) Glyceryl trioleate
 - b) Vegetable ghee
 - c) Coconut oil
 - d) Groundnut oil

Q.4 The catalyst is

 - a) Which speed up the reaction
 - b) Which does not get involve in the reaction
 - c) Both A & B
 - d) 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.