

**Board of Studies: Chemistry**  
**Class: TYBSc (Chemistry)**  
**Subject Code: CHEM3505**  
**Subject: Industrial Chemistry**  
**Semester: V**

## **QUESTION BANK**

### **Q.1. Multiple choice questions**

1. Manufacture of chemical products requires....

- A. Machinery.
- B. Raw materials.
- C. Finished products.
- D. Various operations.

2. To get the desired product in an economic way is called...

- A. Quality control.
- B. Process control.
- C. Unit operation.
- D. Pollution control.

3. The economic factors associated with chemical industries are...

- A. Capital investment, working capital, manufacturing cost
- B. Unit process and unit operation
- C. Process control and quality control
- D. Productivity and creativity

4. Safety measures are to be taken in...

- A. Chemical industries
- B. Toxic materials
- C. Electronic industries
- D. All types of industries

5. Intellectual property includes...

- A. R and D
- B. HR
- C. Safety
- D. TM

6. Ammonia is prepared by...

- A. Ostwald's process
- B. Bosch-Haber process

- C. Contact process
- D. Birkeland-Eyde process

7. The ideal temperature for conversion of ammonia to nitric oxide is...

- A. 150°C
- B. 550°C
- C. 750°C
- D. 1000°C

8. During a reaction, a catalyst is used when...

- A. Temperature is high
- B. Temperature is low
- C. Pressure is high
- D. Pressure is low

9. Oxygen is not the raw material in the manufacture of....

- A. Nitric acid
- B. Sulphuric acid
- C. Ammonia
- D. Sulphur trioxide

10. In the manufacture of nitric acid by Ostwald's process, the catalyst used is...

- A.  $\text{Fe}_2\text{O}_3$
- B. Platinum
- C. Pt- Rh
- D. Vanadium pentoxide

11. The pH of the soil after the addition of fertilizer should be in the range of....

- A. 7 to 8
- B. 6 to 7
- C. 8 to 9
- D. 5 to 10

12. ....has the highest nitrogen content in the nitrogenous fertilizers.

- A. Urea
- B. Ammonium nitrate
- C. Chilian nitrate
- D. Ammonium sulphate

13. The process of conversion of  $\text{NO}_2^-$  to  $\text{NO}_3^-$  is called..

- A. Denitrification
- B. Decomposition

- C. Nitrification
- D. Oxidation

14. The process of conversion of  $\text{NO}_3^-$  to  $\text{N}_2$  is called..

- A. Reduction
- B. Ammonification
- C. Nitrification
- D. Dentrification

15. In 8-16-8 mixture, there is a total of.....% active fertilizer constituents.

- A. 8%
- B. 16%
- C. 32%
- D. 24%

16. The function of compound imbibitions process is to....

- A. Reduce the sucrose in the fibre
- B. Clean the crystals of sugar
- C. To stop inversion of sucrose
- D. Increase the sucrose in the fibre

17. The nature of sugarcane juice is...

- A. Acidic, opaque, greenish liquid
- B. Alkaline, thick, yellowish liquid
- C. Neutral opaque, pale yellow liquid
- D. None of these

18. The internodes of sugarcane contains...

- A. Eyes or buds
- B. The greatest part of the juice containing sucrose
- C. Hard rings with brown, green or purple colour
- D. None of these

19. The screening process is essential to...

- A. Remove floating impurities
- B. Remove colour
- C. Remove mud particles
- D. Remove sulphur particles

20. Glucose is converted into ethyl alcohol by enzyme

- A. Invertage
- B. Zymase

- C. Maltase
- D. Diastase

21. Starch on hydrolysis enzyme diastase gives

- A. Glucose
- B. Fructose
- C. Glucose + fructose
- D. Sucrose

22. Molasses is converted into ethyl alcohol in presence of enzymes....

- A. Zymase
- B. Invertase
- C. Both A and B
- D. Azeobacter

23. The wash or wort contains.....% of alcohol

- A. 15-20 %
- B. 6-10% %
- C. 48-60%
- D. 20-30%

24. Fusel oil contains mainly.....

- A. Amyl alcohol
- B. Hexanol
- C. Acetic acid
- D. Acetaldehyde

25. The spirit stronger than proof spirit is called..

- A. Over proof spirit
- B. Under proof spirit
- C. Amyl alcohol
- D. Butyl alcohol

26. Glass easily reacts with....

- A. Water
- B. Hydrochloric acid
- C. Nitric acid
- D. Hydrofluoric acid

27. Glass is...

- A. Semiconductor
- B. Insulators

- C. Good conductors
- D. None of these

28. Which one of the following materials provides many constituents for making glass.....?

- A. Feldspar
- B. Borax
- C. Soda ash
- D. Lime stone

29. Cryolite is.....

- A.  $\text{Na}_3\text{AlF}_6$
- B.  $\text{Sb}_2\text{O}_3$
- C.  $\text{Na}_2\text{HPO}_3$
- D.  $\text{As}_2\text{O}_3$

30. Sheet glass is generally made by.....

- A. Pressing
- B. Blowing
- C. Drawings
- D. Pressing and blowing

## **Q.2. Answer in one sentence**

1. What is unit process?
2. Explain unit operation.
3. Define conversion.
4. Explain the term yield.
5. What is meant by quality control?
6. Give two important uses of nitric acid.
7. Give favourable conditions for better yield of ammonia.
8. Give favourable conditions for better yield of nitric acid.
9. Give favourable conditions for better yield of sulphuric acid by contact process.
10. Give two important uses of sulphuric acid.
11. Give two important uses of ammonia.
12. Define fertilizer.
13. What are different types of fertilizer?
14. Urea is a most popular nitrogenous fertilizer. Why?
15. Write any two qualities of a good fertilizer.
16. Give two application of urea.
17. What is nitrification?
18. Give two applications of molasses.
19. Give two application of bagasse.
20. Give importance of sugar industry.

21. What is compound inhibition process?
22. Define the term massecuite.
23. How is the impurity in sucrose tested?
24. Define the term fermentation.
25. What is absolute alcohol?
26. Give basic requirements for fermentation.
27. What is importance of fermentation?
28. How is ethyl alcohol obtained from ethylene?
29. What are the raw materials used for preparation of cement?
30. Explain five types of Portland cement?

**Q.3. write a note on-**

1. Benediction by floatation process.
2. Pot furnace in glass industry.
3. Coffee still.
4. Fermentation process.
5. Liquid phase hydration.
6. Estimation of sugar
7. By- product of sugar industry.
8. Carbonation process.
9. Mixed fertilizer.
10. Types of fertilizer.
11. Qualities of good fertilizers.
12. Nitrogen cycle.
13. Contact converter in sulphuric acid.
14. Concentration of dil.HNO<sub>3</sub>.
15. Important of IP rights
16. Selectivity
17. Chemical production.
18. Quality control
19. Capital investment.
20. Raw material.

**Q.4. Answer in brief the following:**

1. What do you mean by the term industrial chemistry?
2. How is chemical process carried out economically?
3. How are chemical reactions classified?
4. Give short notation of the term copyright and trademark.
5. Differentiate between batch and continuous operations.
6. What are the advantages of vanadium pentoxide over platinised asbestos catalyst?

7. Describe the manufacture of nitric acid by Ostwald's process.
8. Describe the manufacture of sulphuric acid by contact process.
9. Describe the manufacture of ammonia by modified Bosch-Haber process.
10. Explain different methods for concentration of nitric acid.
11. What are the basic requirements for a chemical industry?
12. What are the advantages of organic manures?
13. What are qualities of good fertilizers?
14. What are fertilizers? How are they classified?
15. Discuss the manufacture of urea with flow sheet diagram.
16. Discuss the manufacture of triple super phosphate with flow sheet diagram.
17. Discuss the manufacture of super phosphate with flow sheet diagram.
18. Explain the action of ammonium sulphate as fertilizer.
19. What are the functions of essential nutrients?
20. Why is necessary to supply fertilizers to plants?
21. What are the acidic and basic fertilizers?
22. Explain the estimation of sugar by polarimeter.
23. Describe the manufacture of raw sugar from sugarcane with flow sheet diagram.
24. Discuss the utilization of by-products of sugar industry.
25. Write a note on multiple effect evaporation in sugar industry.
26. Explain lime defecation process in sugar manufacture.
27. Describe the factors affecting fermentation yield.
28. Write a note on coffee still.
29. Discuss the conditions of favourable for fermentation.
30. What are the basic requirements for fermentation process?
31. Discuss the manufacture of ethyl alcohol from molasses.
32. What is glass? Explain nature of glassy state.
33. Explain the chemical and physical properties of glass.
34. What is cement? Give the classification of Portland cement.
35. Discuss the composition of Portland cement.
36. Distinguish between dry process and wet process in the manufacture of cement.
36. Explain in brief different raw materials used for making glass.
37. Discuss the manufacture of safety matches.
38. Describe the manufacture of agarbatti.
39. How will you prepare naphthalene balls?
40. Discuss the manufacture of shoes polishes.

### **Q.5.Long answer questions**

1. What are the factors that must be considered while selecting a unit process?
2. Explain in brief the significance of research and development in the industry.
3. What will happen if proportion of ammonia and air is not properly maintained?

4. Write the various chemical reactions taking place during the manufacture of nitric acid, sulphuric acid and ammonia.
5. The composition of raw materials has to be carefully controlled in the manufacture of cement. Explain.
6. How molten glass is formed? Explain giving example of pot furnace.
7. What do you mean by forming of glass? Explain any one method of forming of glass.
8. Discuss the manufacture of fountain pen ink.