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( CBCS )

( 5th Semester )

**CHEMISTRY**

EIGHTH (B) PAPER

**( Industrial Chemistry )**

*Full Marks : 75*

*Time : 3 hours*

**( PART : A—OBJECTIVE )**

( *Marks : 25* )

*The figures in the margin indicate full marks for the questions*

SECTION—A

( *Marks : 10* )

Tick (✓) the correct answer in the brackets provided :

1×10=10

1. Which of the following is not a primary nutrient?

(a) Calcium ( )

(b) Nitrogen ( )

(c) Potassium ( )

(d) Phosphorous ( )

- 2.** The physical process in the process of setting of cement is
- (a) hydrolysis ( )
  - (b) hydration ( )
  - (c) dehydration ( )
  - (d) gel formation ( )
- 3.** The boiling appearance of fermentation is due to the production of
- (a) CaO ( )
  - (b) CO<sub>2</sub> ( )
  - (c) CO ( )
  - (d) O<sub>2</sub> ( )
- 4.** The non-enzymic browning reaction which occurs during melting of sugars is called
- (a) retrogradation ( )
  - (b) gradation ( )
  - (c) carbonization ( )
  - (d) caramelization ( )
- 5.** Nitrocellulose is formed by nitrating cellulose through exposure to
- (a) HNO<sub>2</sub> ( )
  - (b) H<sub>2</sub>SO<sub>4</sub> ( )
  - (c) HPO<sub>4</sub> ( )
  - (d) HNO<sub>3</sub> ( )

**6.** The term 'hide' is referred to the skin of animals such as

- (a) bull ( )
- (b) goat ( )
- (c) sheep ( )
- (d) None of the above ( )

**7.** Technically the highest rank coal is

- (a) anthracite ( )
- (b) graphite ( )
- (c) bituminous coal ( )
- (d) lignite ( )

**8.** Oil gas is prepared from kerosene oil by a method of

- (a) reforming ( )
- (b) carbonization ( )
- (c) cracking ( )
- (d) distillation ( )

**9.** Aliphatic polyamides are generally known as

- (a) resin ( )
- (b) polyester ( )
- (c) nylon ( )
- (d) PMMA ( )

10. In textile industry, the fabric that has been woven but has not been wet or dry processed is called

(a) gouache ( )

(b) yarn ( )

(c) foulard ( )

(d) griège ( )

SECTION—B

( Marks : 15 )

Answer the following questions :

3×5=15

1. How is ammonium sulphate produced from flue gases?

**OR**

2. What are the two types of safety glasses?

3. Write a brief note on Maillard Browning.

**OR**

4. What are dietary lipids? Give two examples.

5. Write a brief note on the advantages of curing in leather industry.

**OR**

6. Write the preparation of cordite.

7. How is producer gas prepared? Mention its physical properties.

**OR**

8. What is the composition of water gas? Write two uses of water gas.

9. Write a brief note on the colour consideration in textile industry.

**OR**

10. Why do PVC (polyvinyl chlorides) comprise the largest group of thermoplastic materials?

( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks for the questions*

1. (a) What are the essential raw materials in the manufacture of cement? 2  
(b) Why is soda ash used in glass industry? 2  
(c) Why is urea harmful to citrus crops? 2  
(d) What are the raw materials required in the manufacture of glass? 4

**OR**

2. (a) What are insoluble phosphate fertilizers? 2  
(b) What is Portland cement? Give its chemical compositions. 4  
(c) Using a suitable equation, describe the manufacture of calcium ammonium nitrate. 4
3. (a) Why are preservatives added to food? 2  
(b) Why is control of water content important in food industry? 2  
(c) What are microbial enzymes? What are their advantages over animal or plant sources? 3  
(d) What are different stages of growth of microbial culture? Illustrate with diagram. 3

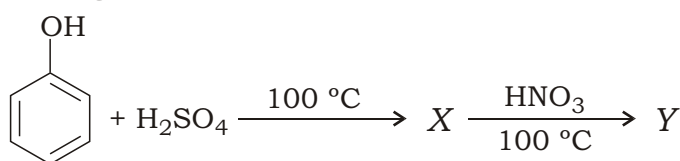
**OR**

4. (a) Why is medium optimization necessary in the genetic improvement of product formation? 3  
(b) What do you mean by refrigerated storage of food? 3  
(c) What are permitted additives? Why are they used as a component in food technology? 4

5. (a) Why is lead azide normally shipped in dextrinated solution? 2  
 (b) Describe the process of preservation of skins in leather industry. 3  
 (c) What is a propellant? Discuss the two types of propellant grains. 5

**OR**

6. (a) Describe the preparation of  $\text{Pb}(\text{N}_3)_2$ . 3  
 (b) Describe the processes of 'dehairing' and 'dyeing' of leather. 3  
 (c) Identify the missing compounds X and Y from the following : 4



7. (a) What is 'steam coal'? 2  
 (b) What is octane number? Why is it primarily used for petrol engines? 3  
 (c) Using a suitable diagram, describe the manufacture of coal gas. 5

**OR**

8. (a) What is autothermal process of coal gasification? 2  
 (b) What is a syngas? 2  
 (c) What are coal tar based chemicals? 2  
 (d) Explain the following terms : 4  
     (i) Reforming  
     (ii) Cracking

9. (a) How is Kevlar prepared by condensation method? 3  
 (b) Discuss one preparation of PMMA (polymethyl methacrylate). 3  
 (c) What do you understand by timing in textile industry? On what factors does it depend? 4

**OR**

- 10.** (a) What are resoles? 2  
(b) What is the role of jobber in textile industry? 2  
(c) "Polyester is a good fibre forming material." Comment on the statement. 3  
(d) Comment on the difference between low-density and high-density polyethylenes. 3

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