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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. The most important nutrient for plants is

- (a) magnesium () (b) nitrogen ()
(c) potassium () (d) phosphorus ()

2. The composition of jena glass is

- (a) SiO₂ and CaO ()
(b) sodium and barium silicates ()
(c) zinc and barium borosilicates ()
(d) B₂O₂ and alumina ()

3. During log phase of microbial culture, the cell grows at

- (a) maximum rate () (b) minimum rate ()
(c) zero rate () (d) None of the above ()

4. Which of the following is not aq. natural occurring pigment?
 (a) Chlorophyll () (b) Carotenoids ()
 (c) Anthocyanins () (d) Quinolones ()
5. Gunpowder is a mixture of
 (a) sulphur, charcoal and sodium nitrate ()
 (b) sulphur, charcoal and potassium nitrate ()
 (c) sulphur, charcoal and ammonium nitrate ()
 (d) sulphur, charcoal and copper nitrate ()
6. Raw skins are generally preserved from action of bacteria by
 (a) bating () (b) soaking ()
 (c) brine curing () (d) None of the above ()
7. Water gas is a mixture of
 (a) CO₂ H₂ () (b) CO₂ N₂ ()
 (c) CO N₂ () (d) CO₂ S₂ ()
8. The lowest rank coal is
 (a) peat () (b) lignite ()
 (c) anthracite () (d) bituminous ()
9. The largest group of thermoplastic material is
 (a) PVC () (b) polyester ()
 (c) PETN () (d) PMMA ()
10. In textile industry, the colourless fabric which is under process is termed as
 (a) gouache () (b) yarn ()
 (c) yardage () (d) grease ()

SECTION—B

(Marks : 15)

Answer the following questions :

3×5=15

1. What is Crooke's glass? Why is it used in making eye lenses?

OR

Write a short note on preparation of calcium ammonium nitrate.

2. Write a short note on caramelization.

OR

What are food colourants? Mention two naturally occurring pigments that are used in foods.

3. What are the secondary high explosives? Give two examples.

OR

How will you prepare TNT from toluene? Mention its uses.

4. Write a brief note on the application of petrochemicals.

OR

What is reforming? Explain in brief how reforming is carried out for the upgradation of liquid fuels.

5. Comment on the statement “the designer’s brushes are his most important tools”.

OR

How will you prepare polyesters? Mention their uses.

(PART : B—DESCRIPTIVE)

(Marks : 50)

The figures in the margin indicate full marks for the questions

1. (a) What are primary nutrients? Mention them. 2
(b) What is setting of cement? 2
(c) What is pyrex glass? 2
(d) What is NPK fertilizer? Mention one preparation of NPK fertilizer. 2+2=4

OR

2. (a) What is reinforced concrete? 2
(b) What are nitrogenous fertilizers? 3
(c) Discuss various types of raw material for manufacture of cement.
Explain the importance of proportioning of raw materials. 3+2=5
3. (a) What are food additives? 2
(b) What are the unit operations in food processing? 2
(c) What are recombinant products? How are they useful in the genetic
improvement of product formation? 2+1=3
(d) Explain the factors favourable for fermentation. 3

OR

4. (a) Explain the terms ‘quality’ and ‘process control’. 3
(b) What are the advantages of microbial enzymes over animal or plant
sources? 3
(c) Explain different methods of food preservation. 4

5. (a) What do you understand by 'fuel' and 'oxidizer' in rocket propellant? 2
 (b) Describe the process of 'tanning of skins' used in leather industry. 3
 (c) Explain how treatment of tannery effluents is achieved by flocculation. 5

OR

6. (a) Why is lime used in the dehairing process of leather industry? 3
 (b) Give the preparation and chemistry of—
 (i) nitroglycerine;
 (ii) picric acid. 3
 (c) Describe the process of 'curing' in leather industry. What are its advantages? 2+2=4
7. (a) Why is reforming necessary in petroleum fuels? 2
 (b) What are coal-tar based chemicals? How are they produced? 2+1=3
 (c) Explain different types of coal, their properties and uses. 5

OR

8. (a) What is allothermal process of coal gasification? 2
 (b) What is synthetic gas? How is it produced? 2
 (c) Explain the following terms : 1½×2=3
 (i) Octane number
 (ii) Cracking
 (d) What are fuels? How are they classified? 3
9. (a) How is polyester synthesized by *trans*-esterification reaction? Give one example. 3
 (b) What do you understand by timing in textile designing? On what factors does it depend? 3
 (c) What are resoles? Give one representative structure of a resole. 4

OR

10. (a) What are low-density polyethylenes? 2
 (b) What is a pexiglass? 2
 (c) What is textile design? Write in short about designer's projection in textile designing. 3
 (d) How is kelvar prepared? Why is it used as bullet-proof vest? 3

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