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(CBCS)

(5th Semester)

CHEMISTRY

EIGHTH (B) PAPER

(Industrial Chemistry)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(Marks : 10)

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

1×10=10

1. In fertilizers, the value of P represents oxides in the form of

- (a) PO_3 ()
- (b) P_2O_5 ()
- (c) H_3PO_4 ()
- (d) H_3PO_3 ()

2. Which of the following glasses is prepared by placing a non-brittle plastic sheet between two thin plate glass sheets?

- (a) Borosilicate glass ()
- (b) Flint glass ()
- (c) Laminated glass ()
- (d) Tempered glass ()

3. Which of the following enzymes is used in baking and milling industry?
- (a) Pectinase ()
 - (b) -Glucanase ()
 - (c) Glucose oxidase ()
 - (d) Protease ()
4. The non-enzymic browning reaction which occurs during melting of sugars is called
- (a) retrogradation ()
 - (b) gradation ()
 - (c) carbonization ()
 - (d) caramelization ()
5. The energy released in an explosion of 1 gram of TNT is approximately
- (a) 800 joules ()
 - (b) 1500 joules ()
 - (c) 3000 joules ()
 - (d) 4000 joules ()
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. Petroleum is obtained from crude oil by refining crude oil by
- (a) steam distillation ()
 - (b) condensation ()
 - (c) partial distillation ()
 - (d) fractional distillation ()
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) resins ()
 - (b) polyester ()
 - (c) nylons ()
 - (d) PMMA ()
10. Which of the following is made from dihydroxy compounds with excess phosgene for manufacture of polyurethanes?
- (a) Monochloroformates ()
 - (b) Bischloroformates ()
 - (c) Trischloroformates ()
 - (d) Tetrachloroformates ()

(SECTION : B—SHORT ANSWER)

(Marks : 15)

Answer the following :

3×5=15

UNIT—I

1. What is phosphate slag?

OR

2. What is quartz glass? Why is it widely used for manufacture of laboratory apparatus?

UNIT—II

3. Write a short note on the main aim and purposes of modern food processing.

OR

4. What is water activity?

UNIT—III

5. What do you understand by the term 'shrink' in preservation of skin?

OR

6. What is guncotton? How is it prepared?

UNIT—IV

7. What do you understand by octane number?

OR

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

UNIT—V

9. Write in short about designer's projection in textile designing.

OR

10. What is Lucite? How is it prepared?

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer the following :

10×5=50

UNIT—I

1. (a) Explain why the use of biofertilizer is an important component of integrated nutrient management. 3
- (b) What is soft glass? What is its composition? 3
- (c) What are the two reactions that are involved in the manufacture of urea in ammonia plant? 4

OR

2. (a) Which glass is mainly composed of cerium oxide? Why is it used for making lenses of eye glasses? 3
- (b) What are the three reactions that take place when cement first comes in contact with water? 3
- (c) Explain why CSP (calcium superphosphate) is the principal phosphate fertilizer. 4

UNIT—II

3. (a) Write a short note on microbial enzyme. 3
(b) What are the five major groups of commercially important fermentations? 3
(c) What are polysaccharides? What are their main functions? 4

OR

4. (a) What do you understand by 'process optimization' in genetic improvement of product formation? 3
(b) Why are colours and preservatives used as food additives? 3
(c) Write a short note on minerals in food. 4

UNIT—III

5. (a) What are the primary objectives of liming process? 3
(b) How is nitroglycerine prepared? Why is it manufactured into dynamite? 3
(c) What are rocket propellants? How are they classified? 4

OR

6. (a) Describe the preparation of $\text{Pb}(\text{N}_3)_2$. 3
(b) What is tanning? How is pH controlled in tanning process? 3
(c) How will you get picric acid from chlorobenzene? Write the reactions involved. 4

UNIT—IV

7. (a) What is steam coal? 2
(b) Explain briefly the process of refining of petroleum. 3
(c) Write a short note on the environmental impact of burning of coal. 5

OR

8. (a) What is autothermal process of coal gasification? 2
(b) What is oil gas? How is it prepared? 2
(c) What are coal-tar based chemicals? 2
(d) What are the reactions that take place in the furnace of producer gas production plant? 4

UNIT—V

9. (a) What is the role of jobber in textile industry? 3
(b) Discuss one preparation of PMMA (polymethyl methacrylate). 3
(c) How was HDPE (high density polyethylene) discovered by accident? 4
Why was it preferred over LDPE (low density polyethylene)? 4

OR

10. (a) Discuss the method of preparation and applications of the following : 2×3=6
(i) PVC
(ii) Polyurethanes
(iii) Phenol-formaldehyde resin
(b) “The designer’s brushes are his most important tool.” Comment on the statement. 4

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