

V / CHEM (viii) (B)

2 0 1 5

(5th Semester)

CHEMISTRY

EIGHTH (B) PAPER [Chem-354 (B)]

(Industrial Chemistry)

Full Marks : 75

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 50)

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

1. (a) What is syngas? Mention two uses of syngas. 3
- (b) Write three points of difference between soaps and detergents. 3
- (c) What are micronutrients? What are their main functions? 4

G16/137a

(Turn Over)

OR

2. (a) What are the basic raw materials for making ceramics? 2
- (b) What is PCE? How is it useful in measuring the refractiveness of raw ceramic materials? 2
- (c) What are fireclays? Mention their general compositions. 2
- (d) Define glazing. Give three important purposes of glazing in manufacturing process of ceramics. 4
3. (a) What are the factors that influence the synthesis of heterologous proteins by a microbial cell? 2
- (b) Why is process optimization necessary in a fermentation process? 2
- (c) Discuss the significance of transformation process in fermentation technology. 3
- (d) What are microbial enzymes? Comment in brief the commercial application of amylase. 1+2=3

(3)

OR

4. (a) Distinguish between free water and bound water. 2
- (b) What are the main functions of carbohydrates in the body? 2
- (c) Write a short note on food safety assurance. 3
- (d) What is denaturation of protein? Why is it necessary in food technology? 3
5. (a) Write the structure of PETN. 2
- (b) How is $[\text{Pb}(\text{N}_3)_2]$ prepared? 3
- (c) How is tanning achieved in leather industry? Discuss the two types of tanning process. 1+4=5

OR

6. (a) What are primary explosives? How are they related to PETN? 3
- (b) Describe any one process by which softening of water could be achieved. 3
- (c) Write a short note on the process of treatment of tannery effluents. 4

(Turn Over)

7. (a) Discuss the process of production of coke from coal. 3
- (b) What is cracking? Discuss the advantage of catalytic cracking method over ordinary cracking method. 3
- (c) How is water gas produced? Write two uses of water gas. 2+2=4

OR

8. (a) Why is the process of reforming necessary for engine fuels? 1½
- (b) Differentiate between allothermal and autothermal processes of coal gasification. 1½
- (c) Write a short note on the environmental impact of coal. 3
- (d) What is producer gas? Mention its properties and uses. 1+3=4
9. (a) What are polysilanes? How do they degrade to silicon carbides? 2
- (b) Write the structures and monomers for getting PMMA. 2
- (c) What is the role of jobber in textile industry? 2
- (d) Discuss the importance of timing in textile manufacture. 4

OR

10. (a) Describe how texture of the paper could affect designing in textile industry. 3
- (b) What are polyurethanes? Illustrate with equation the two principal methods of forming polyurethanes. 3
- (c) How are low-density and high-density polyethylenes manufactured? How do they differ in their densities? 3+1=4

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V/CHEM (viii) (B)

2015

(5th Semester)

CHEMISTRY

EIGHTH (B) PAPER [Chem-354 (B)]

(Industrial Chemistry)

(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 10)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×10=10

1. Fuel gas that is formed by decomposition of organic matters in absence of O_2 is

(a) water gas ()

(b) producer gas ()

(c) biogas ()

(d) syngas ()

(2)

2. A compound used to impart smell to LPG is

(a) tetraethyl lead ()

(b) ethyl mercaptan ()

(c) triethyl thiol ()

(d) phthalic acid ()

3. Synthesis of enzymes of animal origin by microorganisms is possible by the use of

(a) gene mutation ()

(b) RNA recombination ()

(c) cell culture ()

(d) DNA recombination ()

4. Which of the following is not a primary component of food?

(a) Glycoside ()

(b) Carbohydrate ()

(c) Lipid ()

(d) Protein ()

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(3)

5. Cordite is prepared by mixing a paste of

- (a) nitrocellulose + nitroglycerine ()
- (b) nitrocellulose + picric acid ()
- (c) nitroglycerine + picric acid ()
- (d) None of the above ()

6. The process of excessive nutrient enrichment of water is called

- (a) saponification ()
- (b) eutrophication ()
- (c) phosphorylation ()
- (d) nitrification ()

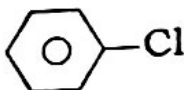
7. The highest rank coal is

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

8. Coal gasification is the process of producing

- (a) producer gas ()
- (b) water gas ()
- (c) gobar gas ()
- (d) syngas ()

9. Bakelite is obtained from phenol by reacting it with

- (a) HCOOH ()
- (b) HCHO ()
- (c)  ()
- (d) CH_3CHO ()

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

- (a) greige ()
- (b) yarn ()
- (c) foulard ()
- (d) None of the above ()

(Marks : 15)

Answer the following questions :

3×5=

1. What are NPK fertilizers? Give a brief account of their manufacture.

(5)

SECTION—B

(Marks : 15)

Answer the following questions :

3×5=15

- 1. What are NPK fertilizers? Give a brief account of their manufacture.**

- 2. What do you understand by lag phase in a microbial culture? Elaborate**

(7)

3. Describe the process of curing of leather.

(8)

4. What is octane number? Write a brief account by which octane number could be increased.

5. Illustrate with equation, how Nylon-6 is obtained from caprolactam.
