Total No. of printed pages = 7

END SEMESTER EXAMINATION – 2020

Semester : 2nd (New)

Subject Code : Sc-203

CHEMISTRY - II

Full Marks – 70

Time – Three hours

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

Instructions :

1. *All* questions of PART – A are compulsory.
2. Answer any *five* questions from PART – B.

PART – A

Marks – 25

1. Fill in the blanks : 1×5=5

   (a) The value of COD is _____ than that of BOD.

   (b) A fuel of 70 octane number means 70% of iso-octane and 30% of _____.

   (c) _____ is the purest form of iron.

[Turn over

(d) Pyridine is a _____ compound.

(e) Natural rubber is a polymer of _____.

2. Answer the following briefly : 1×5=5

(a) How are functional isomers differ from one another ?

(b) What is Annealing of steel ?

(c) How does the addition of magnesia and alumina affect soda lime glass ?

(d) What is Flash point of a fuel ?

(e) What is the functional group of Aldehyde and Carboxylic acid ?

3. Choose the correct answer : 1×5=5

(a) Corrosion of metals involves

(i) Physical reactions

(ii) Chemical reactions

(iii) Both (i) and (ii) above

(iv) None of the above

(b) Mostly used vulcanizing agent is

(i) Sulphur (ii) Nitrogen

(iii) Oxygen (iv) Sodium

(c) An isomer of Ethanol is

(i) Methanol (ii) Acetone

(iii) Dimethyl ether (iv) Diethyl ether

(d) Which of the following fuel causes minimum environmental pollution ?

(i) Coal (ii) Hydrogen

(iii) Diesel (iv) Kerosene

(e) Molybdenum disulphide is a

(i) Lubricating emulsion

(ii) Semi-solid lubricant

(iii) Solid lubricant

(iv) Liquid lubricant

4. Match the following : 1×5=5

(i) 2 Butene	(a) Bauxite
(ii) Smoke	(b) Portland cement
(iii) Aluminium	(c) Cracking
(iv) Joseph Aspdin	(d) Cis-trans isomerism
(v) Heavy oil	(e) Aerosol.

5. Write true or false : 1×5=5

(a) T O C is a water pollution parameter.

(b) Toluene is an aliphatic hydrocarbon.

(c) Bakelite is a thermosetting polymer.

(d) Mgo is an acidic flux.

(e) The full form of C_3s is Tricalcium silicate.

PART – B

Marks – 45

6. (a) What is soil erosion ? What are the main causes of soil erosion ? 1+2=3

(b) Define Water pollution. Suggest few measures to control air pollution. 1+2=3

(c) Discuss the various chemical reactions occur during the manufacture of cast iron in the Blast-furnace. 3

7. (a) What are bricks ? What are the constituents of good brick earth ? 1+2=3

(b) What is cracking ? Mention the different processes of cracking. 1+2=3

(c) Define calorific value of a fuel. Differentiate between gross calorific value and net calorific value of a fuel. 1+2=3

8. (a) What is spiegeleisen ? At what stage is it added in the production of steel ? 1+1=2

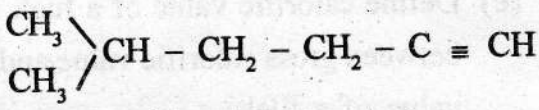
(b) What is setting and hardening of portland cement ? Write the function of Gypsum and Alumina in cement. 2+1+1=4

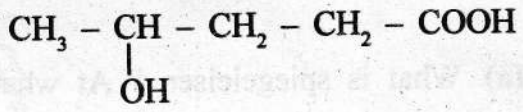
(c) Define a Lubricant. What are the properties we have to consider while selecting a lubricant for a particular machinery ? 1+2=3

9. (a) What is the monomer of Orlon and Bakelite ? Differentiate between thermoplastic and thermosetting polymer. 2+3=5

(b) What is Galvanic corrosion ? Suggest some measures for controlling metallic corrosion. 1+3=4

10. (a) Write down the IUPAC name of the following compunds : 1×3=3

(i) 

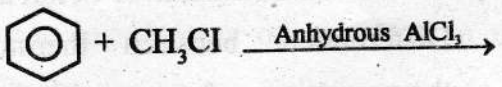
(ii) 

(iii) HCHO.

(b) What do you mean by substitution reaction? Write the substitution reactions when Methane reacts with chlorine in diffused sunlight. 1+3=4

(c) Compute the following reactions (any *two*) : 1×2=2

(i) $CaC_2 + H_2O \longrightarrow$

(ii) 

(iii) $CH_3 - CH = CH_2 + HBr \longrightarrow$

11. Discuss the following (any *three*) : 3×3=9

(a) Ozone layer depletion

(b) Lubricating Emulsion

(c) Electrolytic refining of metals

(d) Producer Gas

(e) Alloy and Amalgam.