

Con. 3520-08.

(REVISED COURSE)

CO-5194

(2 Hours)

[Total Marks : 75]

- N.B. : (1) Question No. 1 is **compulsory**.
(2) From remaining **six** questions attempt any **four**.
(3) **Figures** to the **right** indicate **full** marks.
(4) **All** questions carry **equal** marks.

- 1 Attempt any five from the following 15
- (a) Define corrosion? List the various types of corrosion.
 - (b) Write composition properties and uses of Duralumin?
 - (c) Define fuels? Classify fuels with suitable example.
 - (d) Write the applications of composite materials.
 - (e) What is green chemistry? List the principles of green chemistry.
 - (f) What is catalyst? State the types of catalyst.
 - (g) Define the term calorific value and ignition temperature?
- 2 (a) Distinguish between Galvanizing and Tinning. 4
- (b) What is powder metallurgy? How are metal powders prepared? 6
- (c) the % composition of mass of a sample of coal is as follows.
- C=80%, H=6%, O=8%, S=1.5%, N=1%, ash = rest.
- Calculate the gross and net calorific value of Fuel. 5
- 3 (a) Define composite material? Give the classification of composite materials? 5
- Explain laminates. 5
- (b) Explain Adsorption theory of heterogeneous catalysis? 5
- (c) What is cracking? Write advantages of catalytic cracking over thermal cracking? 5
- 4 (a) Explain basic ideas in the field of green chemistry research with the help of Synthesis Of indigo dye? 5
- (b) A current of 2 Amp. was passed through a solution of copper sulphate for 16 minutes. 5
- Calculate the amount of copper deposited on cathode?(Atomic weight of Copper= 63)
- (c) What is Bio-diesel? Explain the method to obtain Bio-diesel from vegetable oil? 5
- Give advantages of Bio-diesel.

5 (a) Write note on any two of the following.

4

i) Matric phase of composite material

ii) Green solvents

iii) Cermets

(b) A sample of coal contains C=65%, H=13%, O=6%, S=4%, N=2%, and ash= remaining.

Calculate the minimum amount of air needed for complete combustion of 1 Kg. of coal. 5

(c) How are the following factors are responsible for the rate of corrosion?

6

i) Relative areas of anode and cathode.

ii) pH of the medium.

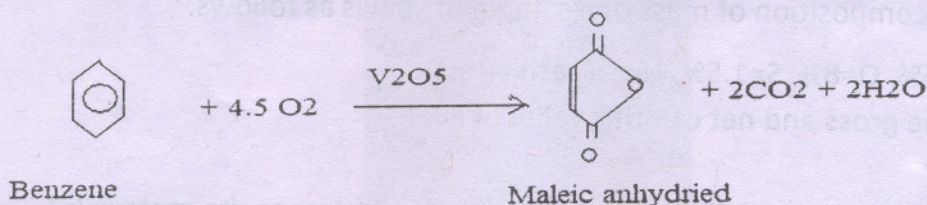
iii) Nature of surface film.

6 (a) Explain types of catalysis with suitable examples.

5

(b) (i) Calculate % Atom economy for the formation of maleic anhydried reaction

3



(ii) Write composition and uses of Wood's metal.

2

(c) (i) What are the characteristics properties of composite material?

3

(ii) What is pillard clays? State important properties of pillard clays.

2

Q. No. 7 (a) Explain refining of petroleum with suitable diagram.

5

(b) Write note on Atomization and Sintering.

5

(c) Define paints? State the characteristics of good paint.

5