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Question Paper Code : 40925

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Second Semester

Civil Engineering

CY 6251 – ENGINEERING CHEMISTRY– II

(Common to All Branches Except Marine Engineering)

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. How will you remove temporary hardness in water ?
2. Mention the essential requirements for boiler feed water.
3. Distinguish between standard electrode potential and single electrode potential.
4. "Drying oil is also called as 'film forming constituent'" - Justify the statement.
5. State the primary function of a breeder reactor.
6. Write any two applications of Hydrogen-Oxygen fuel cell.
7. Arrange abrasives according to Mohs scale of hardness.
8. Give the important characteristics of a refractory material.
9. What is meant by Explosive range of a fuel ? What is its significance ?
10. What is LPG ? Mention its constituents with their % composition.

PART – B

(5×16=80 Marks)

11. a) i) Tabulate the definition, causes, effects remedial measures of the following : (8)
- A) Scale B) Sludge C) Priming D) Foaming
- ii) With a neat diagram and relevant chemical equations explain the softening and regeneration processes involved in Zeolite softener. (8)
- (OR)
- b) i) Explain the internal treatment of hard water by ion exchange process. (8)
- ii) Write notes on : A) Phosphate conditioning B) Reverse Osmosis (8)



12. a) i) How is electrode potential of an electrode determined ? (8)
ii) Enumerate the factors influencing corrosion. (8)

(OR)

- b) i) Describe the mechanism of Electrochemical corrosion. (8)
ii) What is electroless plating ? Briefly explain the electroless plating of Nickel. (8)
13. a) i) How do the thermal and photo conversion of solar energy useful for mankind ? (8)
ii) Explain the discharging and charging processes of Lead storage battery. (8)

(OR)

- b) i) Discuss the harvesting of wind energy. Give the advantages and drawbacks of Wind mills. (8)
ii) Briefly explain the function of light water nuclear reactor with a neat diagram. (8)
14. a) i) With a neat sketch describe the manufacture of Portland cement by wet process. (8)
ii) What is Segar cone test ? How is it carried out ? What is its significance ? (8)

(OR)

- b) i) Discuss the manufacture, properties and uses of the following abrasives. (8)
A) Boron carbide B) Alundum
ii) Write a short notes on : A) Borosilicate glass B) Flint glass. (8)
15. a) i) What is bio-diesel ? How is it produced ? Mention its advantages over gasoline. (8)
ii) A gaseous fuel has the following % composition by volume :
 $H_2 = 24$, $CH_4 = 35$, $C_2H_6 = 6$, $C_2H_4 = 5$, $C_4H_8 = 2.5$, $CO = 7.6$ $CO_2 = 6.5$ and $O_2 = 0.6$ and N_2 rest. Calculate the minimum amount of air required for the complete combustion of $1m^3$ of fuel. (8)

(OR)

- b) i) Explain the proximate analysis of coal and its significances. (8)
ii) Describe the manufacture of synthetic petrol by Bergius process. (8)