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Question Paper Code : X 21288

B.E./B.Tech. DEGREE EXAMINATIONS, NOV./DEC. 2020
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. List out the requirements of boiler feed water.
2. Why Calgon conditioning is better than phosphate conditioning ?
3. What is meant by caustic embrittlement ?
4. Define single electrode potential.
5. Bolt and nut made of the same metal is preferred, justify.
6. Write all the nuclear fission reactions of ${}_{92}\text{U}^{236}$.
7. Write how wine energy is generated.
8. State different types of refractory materials.
9. Give the classification of abrasives.
10. What is the drawback of sulphur in coal ?
11. What is CNG ?

PART – B

(5×16=80 Marks)

11. a) i) With neat diagram, explain the Zeolite process for water treatment. (8)
ii) Describe the demineralization process of water softening and write down the reaction involved in it. (8)
(OR)
- b) i) Explain with neat diagram, the desalination of brackish water of reverse osmosis method. (8)
ii) Describe the carbonate and phosphate conditioning of water to overcome the boiler feed problems. (8)



12. a) i) Explain the principle and mechanism of chemical corrosion. (8)
ii) Describe the sacrificial anode and impressed current cathode method of corrosion control. (8)
(OR)
- b) i) What is paint ? Explain its constituents and functions. (8)
ii) Give a detailed account on copper electroplating. (8)
13. a) i) What is a photovoltaic cell ? Explain the construction and working of a photovoltaic cell with a diagram. (2+6)
ii) How is wind energy harnessed ? What are its advantages and limitations ? (2+3+3)
(OR)
- b) i) Explain the construction, working and uses of a nuclear reactor with a neat diagram. (3+5)
ii) What are the compounds of Ni-cd battery ? Explain its construction and advantages. (2+2+4)
14. a) i) Explain the setting and hardening of cements with reactions involved. (8)
ii) Describe the manufacture and important properties of alumina bricks and carborundum. (8)
(OR)
- b) i) Write the composition, properties and uses of soda and flint glasses. (8)
ii) Describe the determinations of Pyro metric Cone Equivalent (PCE) of refractories. (8)
15. a) i) Describe the ultimate analysis of coal. (8)
ii) What is bio-diesel ? Explain transesterification and advantages of bio-diesel. (8)
(OR)
- b) i) Explain the physico chemical principles involved in the manufacture of water gas. (8)
ii) Explain the flue gas analysis by Orsat method with suitable diagram. (8)
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