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[21 / A-15]

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SARDAR PATEL UNIVERSITY
B.Sc. Industrial Chemistry
(Semester – 4TH) EXAMINATION
9th April 2016, Saturday
Course No. : US04CICH02
(Chemical Plant Utilities)

Total Marks: 70

Time: 10:30 to 1:30pm

Q.1 Answer the given multiple choice questions. [10]

1. Temporary hardness in water can be removed by
a) Filtration b) Boiling c) Sedimentation d) None of these
2. Hard water may be softened by
a) Ion exchange process b) Lime soda process c) Zeolite process d) All of these
3. Violent boiling of water is known as
a) Priming b) Foaming c) scaling d) None of these
4. A good fuel should possess
a) High ignition temperature c) Moderate ignition temperature
b) High calorific value d) Both (b) and (c)
5. _____ gas is used to create inert atmosphere.
a) CO₂ b) N₂ c) H₂ d) O₂
6. _____ gas is used to extinguish fire.
a) CO₂ b) N₂ c) H₂ d) O₂
7. The work requirement of a refrigerant compressor is minimum when the process is
a) Isothermal b) Isentropic c) Adiabatic d) None of these
8. Which of the following is an azeotrope refrigerant
a) R-11 b) R-40 c) R-114 d) R-502
9. Which of the following is a single high pressure boiler
a) Cornish b) locomotive c) Lancashire d) Babcock
10. The efficiency of Diesel engine is
a) 70 to 75% b) Up to 45 % c) 50 to 60 % d) None of these

Q.2 Attempt any Ten. [20]

- i. List common impurities present in water.
- ii. Discuss Clark's method.
- iii. Explain Phosphate treatment.
- iv. What is meant by calorific value of fuel.?
- v. Arrange wood, peat lignite, bituminous coal and anthracite in increasing order of their calorific values.
- vi. Discuss any four industrial uses of carbon dioxide.
- vii. Explain C.O. P.
- viii. Write name of any four inorganic refrigerant.
- ix. Define : Discharge pressure and Clearance factor.
- x. Discuss saturated steam and latent heat .
- xi. Write about economizers and preheaters.
- xii. Explain the function of safety valve and steam stop valve.