

1E2403

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B.Tech. I - Semester (Main) Examination, Dec. - 2018

BSC

1FY2-03 Engineering Chemistry

(Common for all Branches)

Time : 3 Hours

Maximum Marks : 100

Instructions to Candidates:

Attempt all ten questions from Part A, any five questions out of seven questions from Part B and any four questions out of five from Part C. (Schematic diagrams must be shown wherever necessary). Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly

Part - A

(Answer should be given up to 25 words only). All questions are compulsory.

(10/3=30)

1. What is Calgon conditioning?
2. What is Octane number?
3. Define corrosion.
4. What is lime saturation factor in cement?
5. Structure and uses of Aspirin.
6. What is annealing of glass?
7. Cloud and pour point.
8. Composition and uses of coal gas.
9. Advantages of gaseous fuels.
10. Hardness of water.

Part - B

(Analytical/Problem solving questions). Attempt any five questions. (5×10=50)

1. Explain the problems of priming and its preventions in boilers.
2. What is carbonization of coal? Describe Otto - Hoffmann by product oven method of carbonization.

3. What is municipal water? Explain the sterilization process to get drinking grade water.
4. Describe process of dry corrosion and the importance of pilling Bedsworth's rule.
5. Explain composition, preparation, properties and uses of borosilicate glass.
6. Explain electrophilic substitution in benzene
7. What is viscosity of oil? Describe viscosity measurement of oil by Red wood's viscometer number -1.

Part - C

(Descriptive/Analytical/Problem Solving/Design question). Attempt any **four** questions. (4×20=80)

1. What is water softening? Describe water softening by De-mineralization process with diagram. (5+10+5=20)
 2. What is calorific value? Explain the determination of calorific value of coal, with diagram, by a Bomb - Calorimeter. (5+10+5=20)
 3. a) Explain the phenomena of galvanic corrosion by taking suitable example. (10)
b) Describe any two methods of protection from corrosion. (5+5=10)
 4. What is cement? Describe cement manufacturing by a rotatory kiln technology with diagram and reactions involved in the process. (5+5+5+5=20)
 5. a) Explain thick layer mechanism of lubrication. (10)
b) Describe the synthesis, properties and uses of paracetamol. (6+2+2=10)
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