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| Q-3 | Attempt all questions | (14) |
| a. | Write a note on (a) Saponification value (b) Acid value (c) Iodine value. | 07 |
| b. | Write a short note on Industrial organic synthesis of Ethyl acetate and Phenol. | 07 |
| Q-4 | Attempt all questions | (14) |
| a. | Write a note on Distillation unit operation. | 07 |
| b. | What is Nitration unit process? Explain it with some examples. | 07 |
| Q-5 | Attempt all questions | (14) |
| a. | Write a note on sulphonation unit process. | 08 |
| b. | Mol. Wt. of unsaturated fat is 956 gm/moles and required moles of iodine formation are 4. Calculate the iodine value for the same. | 03 |
| c. | Mol wt. of Triglyceride derivative is 1451 gm/moles and 3 moles of base (KOH) required for saponification. Calculate the saponification value for the same. | 03 |
| Q-6 | Attempt all questions | (14) |
| a. | Discuss any two method for industrial production of hydrogen. | 07 |
| b. | Discuss about commercial production of carbon dioxide and oxygen. | 07 |
| Q-7 | Attempt all questions | (14) |
| a. | Write a note on the manufacturing process of methyl anthranilate, methyl salicylate and ester of benzyl alcohol. | 07 |
| b. | What are the uses of carbon dioxide, nitrogen and oxygen? | 07 |
| Q-8 | Attempt all questions | (14) |
| a. | Explain industrial manufacturing process of organic synthesis of acetic acid. | 07 |
| b. | What is Petrochemical? Discuss the manufacturing process of Acetone and Propenone. | 07 |

