

PARUL UNIVERSITY
PARUL INSTITUTE OF APPLIED SCIENCES
MID SEMESTER INTERNAL EXAMINATION, MARCH 2019
B. Sc. Chemistry Semester VI

Paper Name: Industrial Chemistry - II

Date: 05/03/2020

Paper Code: 11105354

Time: 1hr 30min

Max. Marks: 40

Instructions:

1. All questions are compulsory and options are given in first and second question only.
 2. Numbers to the right of question indicate the marks of respective question.
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Q. 1 Attempt any *one* question of the following. **(08)**

- (i) Discuss analysis of oils. (Saponification value, Iodine value, Acid value)
- (ii) Describe Flash & Fractional distillation / column in detailed.

Q. 2 Attempt any *three* questions from the following. **(12)**

1. What are cationic detergents? Give examples.
2. Explain continuous process for soaps. Why it is better than batch process?
3. Explain manufacturing of oil using diagram (any one technique).
4. Describe Scale-up.
5. Describe Claude Process with process flow diagram.

Q. 3 Do as directed. Attempt *all* five questions. **(05)**

1. Label the hydrophilic and hydrophobic part in the molecule:
 $\text{CH}_3(\text{CH}_2)_{16}\text{COO}(\text{CH}_2\text{CH}_2\text{O})_n\text{CH}_2\text{CH}_2\text{OH}$
2. If soap has high alkali content it irritates skin. How can the amount of excess alkali be determined? What can be the source of excess alkali?
3. Define Distillation
4. Give one main difference of Distillation and Evaporation.
5. Define Extraction

Q. 4 Write correct option in your answer sheet for following 15 multiple choice questions. **(15)**

1. Glycerol is added in shaving soaps:
 - a) to prevent rapid drying
 - b) to increase rapid drying
 - c) for colour
 - d) to evaporate excess of solvent
2. Zeolites or silicates are added in detergents because, they acts as:
 - a) Detergent binders
 - b) Detergent builders
 - c) Detergent extractors
 - d) Detergent decolourisers
3. Consider the following statements:
 - i Soaps are better for washing clothes than detergents.
 - ii Cetyltrimethylammoniumbromide is a cationic detergent.
 - iii Sodiumdodecylbenzenesulphonate is an anionic detergent.

iv Glycerol is the product in fat splitting.

Which of the above statements are **CORRECT**?

- a) Only 1 b) Both 2 and 3 c) 2, 3, 4 d) All are correct
4. Which of the following is **INCORRECT**?
- a) Non-ionic detergents do not contain ion.
b) $\text{Co}(\text{CO})_4$ is used in hydroformylation.
c) Medicated soaps have antibacterial activity.
d) Rancidity increases the activity and efficiency of oils.
5. Saponification involves hydrolysis of oil in:
- a) acidic media b) basic media
c) at pH 7 d) None of these
6. Boiling point of Toluene which is helpful in distillation.
- a) 101 b) 120
c) 110 d) 95
7. Which electrode used in "Steam Iron Method for H_2 production?
- a) Fe b) Cu
c) Al d) Pt
8. Chemical Structure of Nitrolium
- a) $[\text{Ca}^{2+}] [\text{N}=\text{C}=\text{N}^-]$ b) $[\text{Cu}^{2+}] [\text{N}=\text{O}=\text{N}^-]$
c) $[\text{Cu}^{2+}] [\text{N}=\text{C}=\text{N}^-]$ d) $[\text{Ca}^{2+}] [\text{NH}=\text{C}=\text{NH}^-]$
9. Boiling point of O_2 and N_2 is
- a) -183°C and -195°C b) -178°C and -190°C
c) -190°C and -178°C d) -195°C and -183°C
10. Which liquefied gas is used for artificial rain?
- a) CO_2 b) SO_2
c) H_2 d) NO_2
11. Which chemical is used for absorption in Coke Combustion Method for CO_2 Manufacturing?
- a) KCl b) KHCO_3
c) KOH d) K_2CO_3
12. Leaching is _____ component leached out with _____.
- a) Liquid / solid b) Solid / Solute
c) Solid / Solvent d) None of these
13. Which one unit is not Heat Exchanger?
- a) Internal Floating b) Reboiler
c) Paul coiled d) Graphite Block
14. Tray Dryer is a _____
- a) Continuous Dryer b) Batch Dryer
c) Batch & Continuous Dryer d) None of these
15. Pasta Can be made by which Operations,
- a) Reactor b) Dryer
c) Mills d) Extruders