## Question Paper

Exam Date & Time: 24-Nov-2018 (02:00 PM - 05:00 PM)

**MANIPAL ACADEMY OF HIGHER EDUCATION**

**INTERNATIONAL CENTER FOR APPLIED SCIENCES**
**THIRD SEMESTER BSC APPLIED SCIENCES THEORY EXAMINATION NOVEMBER 2018**
**ORGANIC CHEMISTRY-II [ICH 232 - S2]**

**Marks: 100** **Duration: 180 mins.**

**DESCRIPTIVE**

**Answer ANY FIVE full Questions.**
**Write diagrams, equations or examples wherever necessary.**

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|---|---|---|
| 1) | Discuss in detail catalytic and thermal reforming of gasoline. | (8) |
| 1A) | | |
| 1B) | Explain the following chemical properties of oils and fats:<br>(a) Hydrolysis<br>(b) Hydrogenolysis<br>(c) Saponification | (6) |
| 1C) | Explain with a neat diagram the method of hydrogenation of vegetable oils. | (6) |
| 2) | Explain the following polymerization techniques with their advantage and disadvantage: | (8) |
| 2A) | (a) Suspension<br>(b) Emulsion<br>(c) Solution<br>(d) Bulk | |
| 2B) | Discuss copolymerization equation and reactivity ratio. | (6) |
| 2C) | Write the types of polymerization. Explain in detail the free radical mechanism of addition polymerization. | (6) |
| 3) | Justify the following: | (8) |
| 3A) | (a) A polymer obtained by bulk polymerization method is purer than that obtained by other methods.<br>(b) SBR is a copolymer. Illustrate with structure of SBR<br>(c) Why can't potassium soaps be manufactured by the boiling process?<br>(d) Why does any fat or oil develop a disagreeable odour when left exposed to warm/ moist air for any length of time? | |
| 3B) | Explain the experimental determination of average molecular weight of polymers by viscosity method. | (6) |
| 3C) | A protein sample consists of an equimolar mixture of Haemoglobin (M=15.5 Kg $mol^{-1}$), Ribonuclease (M=13.7 Kg $mol^{-1}$) & Myoglobin (M=17.2 Kg $mol^{-1}$). Calculate Mn & Mw. | (6) |
| 4) | Write a note on biopolymers including: | (8) |
| 4A) | (a) Carbohydrates<br>(b) Proteins<br>(c) Nucleic acids<br>(d) Lipids | |
| 4B) | What is glass transition temperature? Discuss the factors affecting the glass transition temperature. | (6) |
| 4C) | Describe the classification of polymers based on: | (6) |

(a) Structure
(b) Molecular Forces

5) Give an account on the structure, properties and isolation of quinine. (8)

5A)

5B) Give an account on pharmaceuticals chemistry. (6)

5C) Write the synthesis, structure and uses of sulphanilamide. (6)

6) Give the chemical composition and one application of the following: (8)

6A)
(a) Natural rubber
(b) Silicon rubber
(c) Nitrile rubber
(d) Butyl rubber

6B) Discuss the classification of detergents. Explain the manufacture of any one type of detergent. (6)

6C) Discuss the processing of latex to obtain smoked and crepe rubber. (6)

7) Discuss the following soap manufacturing process. (8)

7A)
(a) Boiling process
(b) Cold process

7B) Explain the following: (6)
(a) Refining of crude fats and oils
(b) Discuss the structural composition of oils and fats. Why are animal fats solid and vegetable oils liquid?

7C) Write an account on hydrolytic and oxidative rancidity. (6)

8) What is cracking of petroleum? Explain the Fixed-bed and Moving-bed catalytic cracking of petroleum. (8)

8A)

8B) What is meant by compounding of rubber? Discuss the compounding of rubber. (6)

8C) Explain the refining of crude oil. (6)

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