# Sanjay Ghodawat University, Kolhapur

2020-21

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/00

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|---|---|---|
| **Year and Program: 2020-21; MSc Chemistry (Organic)** | **School of Science** | **Department: Chemistry** |
| **Course Code: CHS609** | **Course Title: Green Chemistry & Industrial Engineering Chemistry** | **Semester : III** |
| **Day :**<br>**Date :** | **End Semester Examination** | **Time : 2 Hrs.**<br>**Max Marks : 50** |

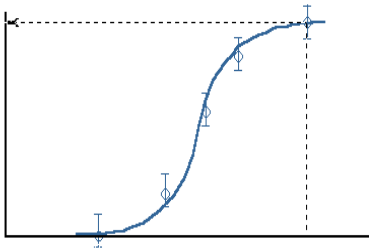
## Question Paper

**Instructions**: 1) All Questions are compulsory.

| | | | Marks | Bloom's Level | CO |
|---|---|---|---|---|---|
| **Q.1** | **Answer the following (any Two)**– | | | | |
| | a) | List 12 principles of Green Chemistry and elaborate any one principle with a case study. | 8 | L1 | CO1 |
| | b) | Give comparative account of yield and atom economy with an example. | 8 | L2 | CO2 |
| | c) | Explain, how pKa and skin irritation are related? Predict the skin irritation for nicotine and imipramine. | 8 | L4 | CO5 |
| **Q.2** | **Answer the following (any two) –** | | | | |
| | a) | What is HAZOP? Give its structure and types. | 8 | L1 | CO1 |
| | b) | i) What is dose response and dose response curve? Explain in details. | 8 | L3 | CO2 |

ii) One of the graphs below represents a dose-response curve. Draw the graph as indicated below and

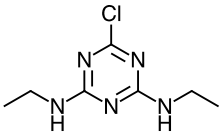
1. Label what is being measured on the x and y axes;
2. Identify the LOAEL and NOAEL points;
3. Assuming the response is "death", mark the LD50 point.

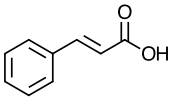


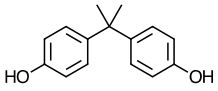
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|---|---|---|---|---|
| c) | Discuss batch reactors and continuous stirred tank reactors in details. | 8 | L2 | CO4 |

**Q.3 Answer the following (any two) –**

| | | | | |
|---|---|---|---|---|
| a) | Calculate Biodegradation Index (BI) for following compounds and predict their biodegradability. | 9 | L3 | CO3 |




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|---|---|---|---|---|
| b) | Explain microwave assisted synthesis with proper example. | 9 | L2 | CO2 |
| c) | Write note on selection of reactors. | 9 | L2 | CO4 |

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