

UNIVERSITY OF JAFFNA, SRI LANKA

FACULTY OF ALLIED HEALTH SCIENCES

FIRST YEAR FIRST SEMESTER EXAMINATION IN BPharmHons IN PHARMACY- 2020

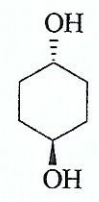
PHACH 1173 PHARMACEUTICAL CHEMISTRY I

Date:14.02.2022

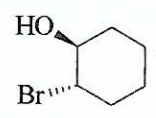
Time: 2 Hours

ANSWER ALL THE FOUR QUESTIONS

- 1. 1.1 1.1.1 Define Chelation. (10 Marks)
- 1.1.2 Briefly explain the role of chelation therapy in angioplasty. (30 Marks)
- 1.2 1.2.1 Draw the chair conformation of the following compounds. (40 Marks)



A



B

- 1.2.2 State the stability conformations of compound A & B with (20 Marks) justification.

- 2. 2.1 2.1.1 Define Expansion of work. (10 Marks)
- 2.1.2 Two moles of an ideal gas at 300 K and 6 atm pressure underwent expansion isothermally to half the initial pressure. Calculate the work ($R=8.314 \text{ JK}^{-1}\text{mol}^{-1}$) for its expansion under the following conditions:
 - 2.1.2.1 Irreversibly against zero external pressure. (10 Marks)
 - 2.1.2.2 Irreversibly against 3 atm external pressure. (20 Marks)
 - 2.1.2.3 Reversibly. (20 Marks)
- 2.2 Briefly describe the pharmaceutical applications of eutectic mixture. (40 Marks)

3. 3.1 Define "Chemical Reaction" (10 Marks)

3.2 Briefly discuss the methods to monitor the progress of a reaction. (30 Marks)

3.3 Consider the reaction: $\text{SO}_2 + \text{O}_3 \rightarrow \text{SO}_3 + \text{O}_2$. A rate study of this reaction was conducted at 298 K. The data that were obtained are shown in the table.

No.	SO_2 (mol/mL)	O_3 (mol/mL)	Initial rate (mol/mL/s)
01	0.25	0.40	0.118
02	0.25	0.20	0.118
03	0.75	0.20	1.062

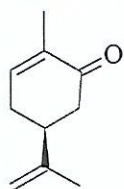
3.3.1 Determine the order respect to SO_2 & O_3 . (50 Marks)

3.3.2 Write down rate law of the reaction. (10 Marks)

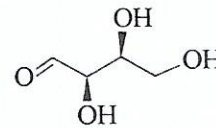
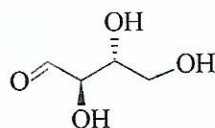
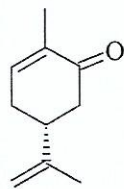
4. 4.1 Define Diastereomer. (20 Marks)

4.2 Briefly discuss the importance of stereochemistry in drug discovery. (20 Marks)

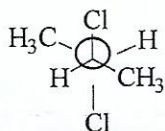
4.3 State the stereochemical relationship between the following molecules with justification.



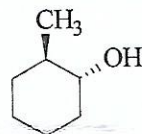
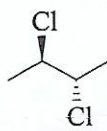
4.3.1



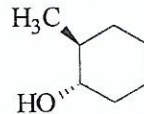
4.3.2



4.3.3



4.3.4



(60 Marks)