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**Department of pharmacy**

**Medical Institute**

**University of Hawler polytechnique**

**Subject: pharmaceutical chemistry**

**Course Book – 2nd stage**

**Lecturer's name : Shilan Ali Omer**

 **Academic Year: 2023/2024**

**Course Book**

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| **1. Course name** | **Pharmaceutical chemistry** |
| **2. Lecturer in charge** | **Shilan ali omer** |
| **3. Department/ College** | **pharmacy /medical institute** |
| **4. Contact** | **e-mail: shilan.umer@epu.edu.iq** |
| **5. Time (in hours) per week**  | **Theory: 2** **Practical: 2**  |
| **6. Office hours** | **Tuesday 9.30-12.30** |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | **I graduated from the collage of science, department of chemistry. I have got M.Sc. in 2008. I have got my Ph.D. in 2020.**  |
| **9. Keywords** | **Acidity and Basicity, preparation of alcohols and elements** |
| **10. Course overview:****Pharmaceutical chemistry Studying Pharmaceutical Chemistry gives you the chance to explore all the fundamentals of organic chemistry, biochemistry and pharmacology while developing a specialist in pharmaceutics. Throughout the course you’ll be building up your knowledge and getting to practise the skills that are sought after by a wide range of industries.** |
| **11. Course objective:****1. Provided with the principles of limit tests.****2.Familiar with different classes of inorganic pharmaceuticals and their analysis****3. Identification of different anions, cations and different inorganic pharmaceuticals.****4. Knowledge about the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals.****5.understand the medicinal and pharmaceutical importance of inorganic compounds****6. To have been introduced to a variety of inorganic drug classes.**  |
| **12. Student's obligation****The students are obliged to attend to the class room. Student also enforced to make examination ,prepare reports and presentation****.**  |
| **13. Forms of teaching****The kind of teaching method include :data show, PowerPoint, white board and reports** |
| **14. Assessment scheme****Monthly theory exam :10 marks****Practical exam :15 marks****Final theory exam :20 marks****Final practical :30 marks ‌** |
| **15. Student learning outcome:****The student will be familiar with main topics in pharmaceutical chemistry which concerned with drugs, anions and cations and their applications** |
| **16. Course Reading List and References‌:****1-"https://www.alibris.com/The-Organic-Chemistry-of-Drug-Design-and-Drug-Action-Richard-B-Silverman/book/7898154****2- Https://www.alibris.com/Wilson-and-Gisvolds-Textbook-of-Organic-Medicinal-and-Pharmaceutical-Chemistry/book/28612124****1-asian journal of research in chemistry and pharmaceutical sciences****2-austin journal of analytical and pharmaceutical chemistry**  |
| **17. The Topics:** | **Shilan ali omer** |
| **Course programmed** **Week 1: Organic Pharmaceutical Chemistry, Types of Functional Groups** **Week 2 : Iron, chemical properties of iron, medical use****Week 3: Magnesium, chemical properties of magnesium, medical use** **Week 4: Calcium , chemical properties of calcium, medical use** **Week 5 : Zinc, chemical properties of zinc, medical use****Week 6 : Sulphur, chemical properties of sulphur, medical use****Week 7 : Phosphorus, chemical properties of phosphorus, medical use****Week 8 : Aluminium, chemical properties of aluminium, medical use****Week 9 : Alcohol, classification, identification, preparation of alcohol, Commercial preparation of alcohols****Week 10: Ethers, classification, identification, preparation of ethers.****Week 11 : Aldehydes and ketones, identification, sources, properties and their preparation** **Week 12: Carboxylic acids, identification, sources, properties and their preparation.**  |  **(2 hrs)** |
| **18. Practical Topics (If there is any)** |  |
| **Week 1****Synthesis of Aspirin****Week 2****Preparation of Benzimidazol****Week 3** **Preparation of Benzocaine****Week 4** **Preparation of Benzoic acid****Week 5** **Preparation of Acetanilide****Week 6****Test for identification of organic pharmaceutical compound like (hydrocarbons, paraffin, alcohols, ethers, aldehyde, ketone, carboxylic acid)****Week 7****Purification test for some pharmaceutical compound****Week 8****Type of solutions and normality and preparation of solutions****Week 9,10****Standarazation of most inorganic compound with test as they taken in the theoretical part****Week 11, 12****Standarazation of most organic compound with test as they taken in the theoretical part** |  **(2 hrs)** |
| ***-------------------------------------------------------------------------------------------------------------*** Q1Q1/Fill the following with scientific words:- (40 Marks)1. 1- Alcohols and ethers have similar ---------------------------to those present in --------------------------.
2. 2-Hemoproteins are responsible for ----------------------------------------- and ------------------------------------------------.
3. 3- Magnesium stearate is used as --------------------------in the preparation of ------------------------------.
4. 4- The antidote for zinc poisoning is ---------------------------------------------.
5. 5-Zinc has many therapeutic uses like-------------------------------------------------------------------------------------------------------------------------------------and helps to --------------------------------------------.

Q2/Q2/ Answer the following questions:- (30 Marks)A- A- Why amino group are generally stronger electron donating group than either alcohols or ethers?B- B- Define Anemia and mention the factors that cause anemia.C- C- Why alkyl groups are not similar to alcohol?Q3/Q3/Answer the following questions:- (30 Marks)A-A- Classify alcohol according to the number of hydroxyl groups present in the molecule, and explain by an example?B-B- What are the general methods for the preparation of alcohol? |
| 20. Extra notes:No more notes |
| 21. Peer review |