

- II) A drug with a higher affinity for a receptor can compete with or displace another drug that binds the same receptor but has a lower affinity.
- III) If a drug has a high affinity for a receptor, it must necessarily produce a response.
- IV) The affinity of a drug is inversely proportional to its potency.
- (6) I) Define the term Efficacy

Answer true or false to following statements about efficacy

- II) Synergy describes cases in which two drugs that individually produce similar effects (similar efficacy) can yield a super-additive effect when they are combined together
- III) A drug, when occupying the receptor, does by default produce one standard unit of response
- IV) A drug, when occupying the receptor may produce a complete response, or no response, or some partial response.
- (7) Describe the process involved in serial dilution
- II) In serial dilution, the dilution factor of each tube in a set is

Volume of Sample/Volume of Sample + Volume of Diluent; True/False

- (8) The table below is a one in ten (1:10) serial dilution of drug A to the fourth dilution, complete the mathematics and dilution rows.

Tube	1	2	3	4
Aliquot	1ml	1ml	1ml	1ml
Diluent	9ml	9ml	9ml	9ml
Maths	1/10			
Dilution	1:10			

- (9) I) How would you make 500ml of a 1:250 dilution
- II) What would be the concentration of a solution made by adding 200ml of water to 50.0ml of 4.0M KOH
- (10) A researcher just isolated two compounds from two different plants. He is interested in knowing the effects these compounds A&B will have on an isolated tissue e.g. a rat ileum, he approaches you as a Pharmacy student to help design an experiment to evaluate the effects of drugs A and drug B on the tissue. It is given that drug A stimulates the tissue while drug B opposes the effects of drug A.

Give a description of the experimental design in terms of; the equipment to use, sequence of administration of the drugs, results to expect.



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**COLLEGE OF PHARMACY**  
**DEPARTMENT OF PHARMACOGNOSY AND NATURAL PRODUCTS**  
**FIRST EXAMINATION 2022/2023 SESSION**  
**PHARMACOGNOSY I UNIT: 2**

**COURSE: PCG 201**

**Level: 300**

**Date: 03/02/2023**

**Time Allowed: 3 hours**

**INSTRUCTIONS:**

1. Answer at least ONE QUESTION from each section.
2. Answer all the questions in your answer booklet
3. Write your Matriculation number in the space provided in

**SECTION ONE**

1. Compare and contrast Cultivation collection and Wild collection of crude drugs (10marks).
2. (a) Mention the seven (7) factors affecting cultivation  
(b). Briefly discuss any four (4) of the factors enumerated in (a) (10marks).

**SECTION TWO**

1. Using an annotated chart, classify the fibres used in surgical dressings (10marks)
2. Miss Lois brought a sample labelled Petiveria to your lab for analysis. 2g of the crude drug was used for the analysis to determine the acid-insoluble ash. The ash recovered was 0.3g.  
a) Briefly comment on the nature of sample  
b) Name the solvent used for this analysis  
[Take the pharmacopoeia standard= Not more than 10%] (10marks)

**SECTION THREE**

1. (i) What are resins? (ii) Outline the chemical properties of resins. (iii) Define oleoresins and in what ways do they find their usefulness? (10marks)
2. Outline the uses of the following: (i) Turpentine (ii) Benzoin (iii) Myrrh (10marks)

**SECTION FIVE**

1. a. Why do we study enzymes in Pharmacognosy?  
b. Mention five microorganisms implicated in the production of  $\alpha$ -Amylase (10marks)
2. a. A patient walks into your herbal clinic with a complain of slow digestion of carbohydrates. What would you prescribe for the patient?  
b. Give the therapeutic uses of Lipase. (10marks)

**SECTION SIX**

1. Discuss any five (5) medicinal plants products used as herbal additives under the following heading:  
a. Herbal additive b. Botanical source c. Part used d. Purpose (10marks)
2. a. State any five (5) synthetic additives commonly used in herbal drugs formulation  
b. State five (5) reasons why dosage drug design is important in herbal drug formulation (10marks)





DEPARTMENT OF PHARMACEUTICS AND PHARMACEUTICAL TECHNOLOGY  
COLLEGE OF PHARMACY  
AFE BABALOLA UNIVERSITY, ADO EKITI

300 LEVEL PHARM D. FIRST SEMESTER EXAMINATION 2022/2023 SESSION

COURSE: PCT 301(Physical Pharmaceutics)

DATE: Monday February 6, 2023 TIME: 9.00am – 12.00 noon (3 hr)

Matric No

There are three sections in this question paper, Section A (MCQs), Section B (Short Answer Questions) and Section C (Essay Questions). You are to answer the questions as specified under each section.

SECTION B (Short Answer Questions)

Instructions:

- Answer all questions in Section B in the answer booklet provided
- Answer each question on a fresh page of the answer booklet
- Each question carries 5 marks.

1. Describe the mechanism of Adsorption process
2. Briefly explain the following:
  - a) Interfacial tension,
  - b) Dipole force,
  - c) Induced dipole,
  - d) Dispersion forces,
  - e) Contact angle hysteresis
3. Briefly state the pharmaceutical application of solubilization methods.
4. Explain lyophilic dispersion
5. Explain briefly with equation where necessary:
  - a. the method that can be used prepare a colloidal solution of Sulphur.
  - b. the method that can be used to prepare sols of the hydroxide of Iron.
6. Enumerate five (a) classes of surfactants and give two (b) examples for each class.

Non-ionic  
Surfactants

Anionic Surfactants — Soaps of alkali  
Sulphate, alcohol  
Amines and salts

Amphoteric — Lecithin

— A-B-A copolymer

PLEASE TURN OVER TO PAGE 8

Polymers  
Surfact

## SECTION C (Essay Questions)

### Instructions:

- Answer ANY THREE (3) QUESTIONS in Section C in the answer booklet provided
- Answer each question on a fresh page of the answer booklet
- Each question carries 12 marks.

- ✓ 1. (a) Define adsorption isotherm and list two popular adsorption isotherm models.  
(b) Discuss how temperature and surface area of an adsorbent will influence the rate of adsorption.
2. Explain application of adsorption in the followings:  
(a) Content uniformity of low dose drug  
(b) Enhancement of drug bioavailability  
(c) Prevention of drug sublimation during storage
- ✓ 3. (a) Describe extensively the behavior of surfactant molecules in a solution at low concentration, increased concentration, critical micelle concentration, above critical micelle concentration and below critical micelle concentration.  
(b) Mention two usefulness and two limitations of micelles in production of pharmaceuticals. *drug delivery system*  
*solubilization aids*
- ✓ 4. a) Using the DLVO theory, explain the stability of colloidal systems stating its assumptions.  
b) Derive an equation for the determination of surface tension of a liquid by capillary rise.

$$\gamma = \frac{r h \rho g}{2}$$

*dyne/cm*

$$2\pi r \gamma \cdot \pi r^2 \cdot h \cdot \rho \cdot g$$



- (11) How would you interpret the expected results in Q10 above
- (12) A new molecule has just been discovered, the owners of the patent are interested in formulating the compound into a suitable dosage form. He wants you to help design an experiment to evaluate the different dosage forms in terms of onset of action and convenience of administration. Given that the drug is a sedative /hypnotic.
- Give a description of the experiment in terms of; animals, drug administration, onset of action, sleeping time and interpretation of expected results with the aid of a table.
- (13) Enumerate five(5) factors that will influence the choice of the route by which a drug is administered
- (14) I) the routes of drug administration is classified broadly into-----
- II) Give an example in each category
- III) Which route delivers 100% of the drug into the blood stream.
- (15) A traditional herbal practitioner has just prepared a concoction named Conc Zee. He wants to know the dose that will be effective, toxic and lethal. Kindly assist him in designing an animal experiment to evaluate the relationship between increasing dose and response.
- Give a description of the experimental design in terms of; the equipment to use, animals, administration of the drugs, results to expect and interpretation with the aid of a graph.
- (16) I) when does anaesthesia begin in an experimental animal
- II) describe the termination of anaesthesia in an experimental animal
- (17) I) Define sleeping time
- II) Define the terms  $ED_{50}$  and  $LD_{50}$
- III) What is the relationship between  $ED_{50}$  and  $LD_{50}$
- (18) I) What will be the expected response of a rat ileum to acetylcholine in the presence of Atropine
- II) Which receptors are at work in this case
- (19) The response of a smooth muscle cell in a laboratory to a stimulus can be observed as ----  
-- or-----
- (20) The stimuli type could be; I), II), III) or IV)



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300 LEVEL PHARM MID-SEMESTER TEST 2022/2023 SESSION

COURSE: PCT 313 (Dispensing Practical III)

GROUP A2

DATE: Wednesday, December 7 2022 TIME: 9.30 am – 11.30am (2 hrs) VENUE: PCT Lab

REG. N

Answer ALL Questions in Sections A and B

**SECTION A**

INSTRUCTIONS<sup>(B2)</sup>: The preparation of the product is required in Section A. The attention of the Examiner must be drawn to any **unusual doses** and **irregular labels**. All quantities used and dispensed and all calculations must be clearly shown. **The method of preparation should only be given where required.**

1. A hospital Pharmacist is called to a male ward to supply an extemporaneous preparation of ethambutol hydrochloride for the treatment of tuberculosis in an adult patient. The dose of the drug for the patient's weight is stated as 10mg/kg/dose twice daily for 3 days. The weight of the child is 60kg. The suspension should contain 600mg ethambutol hydrochloride in 5ml as the formula states below. Prepare the required quantity for 3 days for this patient and label appropriately.

You are to make use of 300mg of ethambutol hydrochloride for this preparation.

Rx

Ethambutol hydrochloride  
Concentrated peppermint water  
Glycerol  
Syrup BP  
Suspending agent  
Purified water to

600mg  
2%v/v  
6%v/v  
25%v/v  
2%w/v  
5ml

**SECTION B**

INSTRUCTIONS: Preparation of the products is not required in this section. However, you are required to show all calculations, table of quantities used, and type of container, label, auxiliary label and specimen label for the product. The attention of the Examiner must be drawn to any **unusual doses** and **irregular labels**.

2. Prepare Kaolin and Morphine Mixture PCx 1979. Send 60ml to Mr. Afolami James.

Label: Apply to affected body parts two times daily.

3. A child with a serious cough is to take 3mg dose of diazepam nocte for six days. Prepare and send the required number of powders and label as appropriate. You are to use lactose as the diluent.



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**DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY  
COLLEGE OF PHARMACY  
FIRST SEMESTER, EXAMINATION 2022/2023 SESSION**

**Course code: PCO 301**

**Level: 300**

**Course Title: GENERAL PRINCIPLES OF PHARMACOLOGY (ALTERNATIVE TO PRACTICAL)**

**Time Allowed: TWO HOURS**

**Date: 27<sup>th</sup> JANUARY 2023**

**INSTRUCTIONS:**

**ATTEMPT ALL QUESTIONS**

**Write your Matriculation number in the space provided in your answer booklet**

- (1) Briefly describe the uses / laboratory applications of the following laboratory equipment .
  - I) Water bath, II) Organ Bath, III) Rota Rod, IV) Chemical Balance
  - V) Kymograph,
- (2) I) Enumerate seven (7) laboratory rules
  - II) Enumerate the lab rules to apply in the event of an emergency
  - III) Describe how a student should dress to the laboratory
- (3) The nervous system as a whole is divided into two subdivisions I) & II)
  - iii) The Central Nervous System is made up of -----
- (4) I) List three (3) requirements for the survival of a freshly isolated tissue while handling it.
  - II) Briefly explain any two
  - III) Mention the type of solutions that should be used in tissue experiments,
  - IV) Name three examples of such solutions.
- (5) I) Define the term Affinity

**Answer true or false to the following statements about affinity**





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**DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY  
COLLEGE OF PHARMACY  
FIRST SEMESTER, EXAMINATION 2022/2023 SESSION**

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  - IV) Name three examples of such solutions.
- (5) I) Define the term Affinity

Answer true or false to the following statements about affinity



**DEPARTMENT OF SOCIAL AND ADMINISTRATIVE PHARMACY  
COLLEGE OF PHARMACY**

**MID-SEMESTER TEST 2022/2023 SESSION**

**Course:** SAP 301

**Course Title:** Pharmacy Administration I

**Date:** 21<sup>st</sup> November 2022

**Level:** 300

**Time Allowed:** Forty-five minutes

**INSTRUCTIONS:**

1. Answer ALL questions
2. Answer all the questions in your answer booklet

**Write your Matriculation number in the space provided in your answer booklet**

**SECTION A (10marks)**

1. Central to marketing is the concept of \_\_\_\_\_  
(a) Profit  
(b) Loss  
(c) no interaction  
(d) ~~Exchange~~
2. Marketing mix involves all of the following except \_\_\_\_\_  
(a) Product  
(b) Price  
(c) ~~Person~~  
(d) Place
3. Product is limited to tangible goods  
(a) ~~False~~  
(b) True
4. A producer set a price after considering several variables  
(a) False  
(b) ~~True~~
5. Different participants in the distribution channel can be called \_\_\_\_\_  
(a) Wholesalers  
(b) Retailers  
(c) Consumers  
(d) ~~Intermediaries~~
6. Which of the following is not part of the main components of marketing communication?  
(a) Sales promotion  
(b) Personal selling  
(c) Sponsorship  
(d) Direct marketing
7. Which of the following is not a factor determining market communication?  
(a) the producer  
(b) type of product  
(c) target audience  
(d) stage of product life cycle
8. The roles of advertising include all of the listed options except \_\_\_\_\_



**SECTION B (10 marks)**

1. List two budget types.
2. List the two classes of cost
3. Give two importance of cash flow plan
4. List two clients of a Medical Representative
5. Give two advantages of Medical Representative reporting
6. Medical Representatives are involved in \_\_\_\_\_ while Sales Representatives are involved in \_\_\_\_\_
7. Give two responsibilities of a Medical Representative
8. List two (2) sources of funds for running a pharmacy enterprise
9. Psychological pricing involves setting the price lower than whole number. True or False
10. Premium pricing involves the increasing price for quality perception. True or False
11. Mention two (2) kinds of pricing strategies known to you.
12. List two (2) healthcare financing strategies in Nigeria
13. Itemise two (2) factors to consider when choosing between establishing a new pharmacy and buying an existing pharmacy
14. Give two environmental conditions that drugs (pharmaceuticals) should be protected from during storage.
15. Give two instances when visual inspection of a pharmaceutical product should be done.
16. List two qualities of a well-run drug distribution system
17. List two methods of pharmaceutical procurement
18. List two criteria for selection of pharmaceutical products supplier
19. Give two operational principles of drug procurement
20. List two criteria for drug selection

**SECTION C (40 marks): Attempt only TWO questions from this section**

1. (a) Define/explain the following terms
  - (i) Entrepreneurship
  - ii) A business idea(b) Itemise the characteristics of a promising business idea  
(c) In the management of a community pharmacy business, the pharmacist as an entrepreneur normally has a twin (often conflicting) objective: What are they and how does the community pharmacist manage this twin objective in their business?

(20 marks)
2. Explain briefly with the aid of a simple diagram in each case the following terms
  - (a) The process approach to management studies
  - (b) The systems approach to management studies

(20 marks)
3. Employing Mintzberg's Model, itemise the roles you expect of a manager of named pharmaceutical company.

(20 marks)



**SECTION B (Answer only ONE question from this section)**

**Question 3:** Some aspects of pharmacokinetics allow customization of drug dosage regimes to enhance patients' outcomes a few of them are listed below, briefly describe them in-relation to enhanced outcome;

- I. Bioavailability
- II. Chemical equivalence
- III. Bioequivalence
- IV. Therapeutic equivalence
- V. First pass effect

**Question 4:** Distribution is the process by which a drug is carried to sites of action throughout the body by the bloodstream: discuss within the context of ;

- I. Compartments
- II. Protein binding and its effect on distribution.

**SECTION C (Answer only ONE question from this section)**

**Question 5:** (a). Define Clinical Trail.  
(b). Name two type of errors that can occur while carrying out statistical analysis of the results of a clinical trial.  
(c). What measure can be taken to prevent or minimize the occurrence of such errors?  
(d). State briefly the measure that can be taken to avoid bias while conducting a clinical trial.

**Question 6:** Write short notes on the following:

- (a) Idiosyncratic reaction to a drug.
- (b) Generic name of a drug, give two examples
- (c) Chemical name of a drug, give two examples.
- (d) Brand name of a drug, give two examples.



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**DEPARTMENT OF PHARMACOLOGY & TOXICOLOGY**

**COLLEGE OF PHARMACY**

**PCO 301: PRINCIPLES OF PHARMACOLOGY- ESSAY**

**FIRST SEMESTER EXAMINATION**

**2022/2023 SESSION**

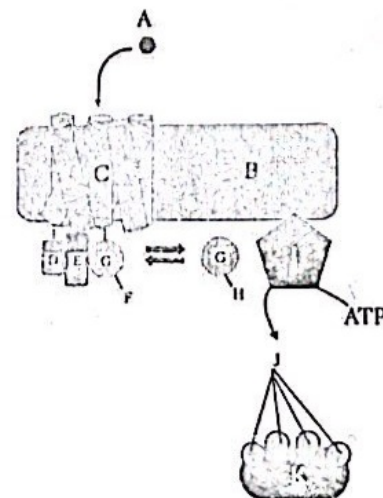
**INSTRUCTION:** The two questions from SECTION "A" are **COMPULSORY**. Answer **ONE** question each from Sections "B" and "C".

**Time allowed: 1:30 min**

**SECTION A**

**Question 1.** The diagram below is representative of the transducing pathway invoked by several hormones physiologically.

- A. Correctly label out items A-K (1 mk each)
- B. Give examples of two hormones representing "A" above (2 mk each).
- C. Give the name of one drug acting at "C" (5 mk).



- Question 2:**
- (a) Differentiate between type A and type B adverse drug reactions.
  - (b). Explain the following terms:
    - i. Teratogenicity
    - ii. Drug dependence
    - iii. Photosensitivity
  - (c). Highlight the difference between drug allergy and idiosyncrasy

• Sale of drugs amounted to 4,200,000 Naira in March. Pharm. Sharon charges two times its cost for the drugs and estimates the transportation to buy the drugs equals about 20 percent of the cost of the drugs.

• Patients paid 400,000 Naira for simple diagnostic tests performed at the pharmacy.

• Salaries paid for the month totalled 350,000 Naira (not including the owner's withdrawals).

• Pharm. Sharon owns the building, but in March she had to pay 60,000 Naira to repair an electrical problem. Water and electricity together cost 15,000 Naira for March.

• Other miscellaneous expenses for March totalled 45,000 Naira

• Pharm. Sharon took 600,000 Naira out of the business for her personal expenses

i. What can you say about the profitability of Pharm. Sharon's pharmacy in March?

ii. What circumstances could make other months' income statements different from March's?

iii. What questions should Pharm. Sharon ask herself or her bookkeeper when she looks at her income statement?

(20 marks)

6. (a) i. What is Drug Supply Management

ii. Outline four ways in which Drug Supply Management is important

(b) i. Itemise six of the storage guidelines for pharmaceutical products

ii. Explain the types of arrangement of drugs in the pharmacy store

iii. Briefly describe the following drug storage concept.

a. First In First Out

b. First Expiry First Out

(20 marks)



**SECTION D (40 marks): Attempt only TWO questions from this section**

4. (a). i. Give four (4) reasons why stock control is important in an established hospital or community pharmacy  
ii. Highlight the steps to follow during stock taking  
iii. List four (4) examples of record books.

(b). Assume you have been appointed with the duty of record keeping in Pharm. Johnston's retail pharmacy. Make the proper entries for the following transactions that occurred on July 30 into the Daily record book (calculate a new balance after each transaction that affects the balance, and then add up the total sales and expenses for the day).

- On July 29, Pharm. Johnston has a cash balance of 350,000 Naira in his cash box, 5,450,250 Naira in his account at the bank, and 95,000 Naira due him from patients to whom he gave credit.
- Mr. Peter purchased antimalarial drug, spirit, and cotton wool for a total of 2,550 Naira and was given a cash receipt numbered 199.
- Mrs. Dalong paid 1,000 Naira for a consultation and was given a cash receipt numbered 200.
- The cashier took 3,500 Naira from the cash box to pay the electricity bill that was due and the utility clerk signed the receipt numbered 201 to prove the bill was paid.
- Mrs. Stone had a family planning consultation and had an injectable contraceptive administered at the pharmacy. She didn't have any money with her, so Pharm. Johnston told her she could pay the 5,000 Naira due later in the week.
- At the end of the day, Pharm Johnston withdrew 450,000 Naira from his bank account to pay salaries.
  - i. How much money did Pharm. Johnston have in the cash box and in the bank account at the end of the day?
  - ii. By how much did Pharm. Johnston's cash balance change and why?
  - iii. By how much did Pharm. Johnston's bank account balance change and why?
  - iv. Which balances would be affected and how if Pharm. Johnston took 180,000 Naira from his cash box at the end of the day and deposited it into his bank account?
  - v. By how much did Pharm. Johnston's credit balance change and why?
  - vi. Which balances would be affected and how if Mrs. Goodluck paid 3,000 Naira on her credit balance?

**(20 marks)**

5. (a). i. Briefly explain the following terms:  
I. Income Statement  
II. Statement of Financial position  
ii. Explain how to make a Statement of Financial position.  
iii. What does the Statement of Financial Position reveal?

(b). Pharm. Sharon owns a retail pharmacy. She is a registered pharmacist who started her pharmacy with savings six years ago. Recently, she realized that financial management is important as it allows her to have the information required to make decisions about improving the pharmacy's performance. She therefore just hired a part-time bookkeeper.

Pharm. Sharon has asked you to help the bookkeeper to prepare a monthly income statement for March. After collecting the daily record books and receipts for the month, the bookkeeper was able to determine the information below.

- The pharmacy was open six days per week, and the average number of patients seen per day was 80. Half of the customers paid a consultation fee of 1,000 Naira (the other half could not afford to pay a consultation fee).



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**COLLEGE OF PHARMACY**  
**Department of Clinical Pharmacy and Public Health**  
**First Semester Examination 2022/2023 Academic Session**

**Course: PCL 301: Biopharmaceutics and Pharmacokinetics** **Exam date: Wed 1/2/23** **Time: 9 am - 12 noon**

**Instructions:**

- Write your **Matriculation Number** on all pages of your answer sheet and **Question papers**
- Question papers and answer sheets must be safely kept with you and should not be allowed to be copied by any person sitting near you
- Answer any **FOUR (4)** questions in this section
- All questions should be answered in the Answer Booklet provided
- All questions carry equal marks
- Endeavour to sign out before leaving the examination hall

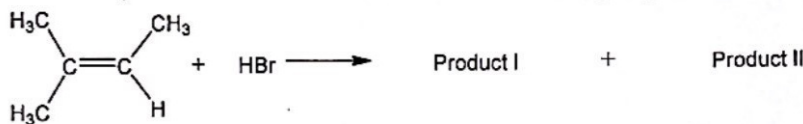
**SECTION B (ESSAY QUESTIONS, 80 MARKS)**

- List 5 Physiological and 5 physicochemical factors that affects drug absorption [5 marks]
  - With the aid of a diagram describe the therapeutic window highlighting what happens when plasma concentration goes above or below the range [5 marks]
  - Explain (with relevant examples) how any 5 physicochemical factors listed above affects drug absorption [10 marks] {ENO}
- Differentiate between active transport and facilitated diffusion [5 marks]
  - Highlight the characteristics of passive diffusion [5 marks]
  - Describe the major routes of drug administration [5 marks]
  - Differentiate between therapeutic equivalence and chemical equivalence. [5marks] {POE}
- Define the following terms;
    - Bioavailability of a drug [2marks]
    - Biopharmaceutics [2 marks]
    - Elimination rate constant [2 marks]
    - Volume of distribution [2 marks]
    - Clearance of drug from plasma [2 marks]
  - Briefly explain what cross over design means in bioavailability studies [5 marks]
  - The bioavailability of a drug is 70% and the volume of distribution ( $V_d$ ) is 40 Litres while half-life is 14 hr. If 300mg is administered orally at a dosing interval of 18 hr, calculate the steady-state plasma concentration ( $C_{ss}$ ) of the drug  $\{C_{ss} = F * (D/t)/(K_e * V_d)$ . Where F is fraction of the drug absorbed, D is the dose administered, t is the dosing interval and  $V_d$  is the apparent volume of distribution} [5 marks]. {POE}



Question 5.

- ✓ (a) Show in the reaction below the Markovnikov addition leading to product I (including the mechanism of reaction) and anti-Markovnikov addition leading to product II.

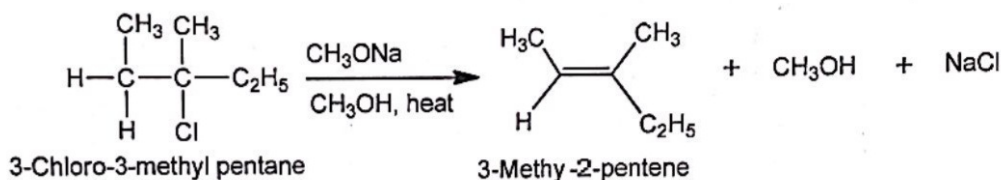


(8 marks)

- (b) State the Markovnikov's rule as applied to electrophilic addition reaction, and mention the implications of this rule in an addition to unsymmetrical  $\pi$ -bonds. (8 marks)

Question 6.

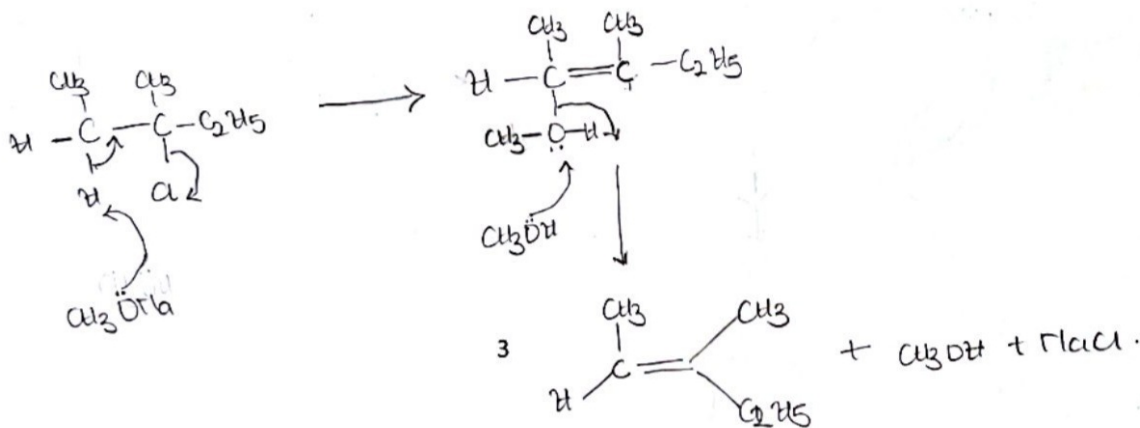
- (a) Explain, citing examples, the terms first and second order elimination reactions. (8 marks)  
 (b) Provide the mechanism of reaction that lead to the synthesis of 3-methyl-2-pentene in the reaction below:



State the type of mechanism that this reaction undergoes to yield 3-Methyl-2-pentene.

(8 marks)

In the ionic reaction of alkene to a double bond, the electrophile forms a single bond to stabilize the formation of a carbocation intermediate.





23<sup>rd</sup> JANUARY, 2023

Matric. Number:.....

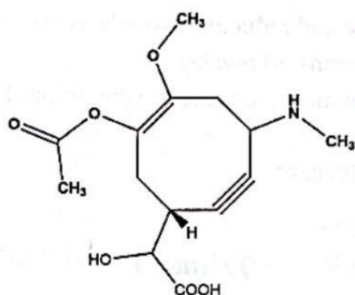
Time allowed: Three hours

ATTEMPT QUESTION 1 AND ANY OTHER FOUR (4) QUESTIONS.

NOTE: Question 1 is compulsory.

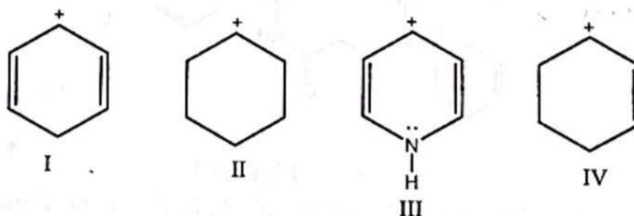
**Question 1.**

- Discuss the roles and importance of separation techniques in pharmacy. (9 marks)
- Using chemical illustrations, differentiate between Baeyer – Villager oxidation of ketone and cycloketone. (9 marks)
- Unambiguously circle and label (i.e., after circling provide the name of the circled functional group) all the functional groups in **Figure X** (9 marks)

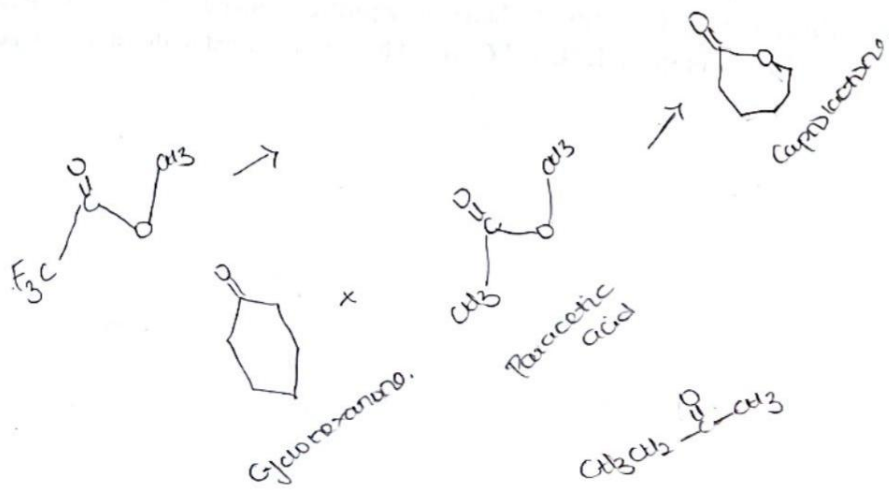


**Figure X**

- Identify chemical species I to IV in **Figure M** in their order of carbocation stability, starting with the least stable. Justify your answers with reasons. (9 marks)



**Figure M**



- (a) communicative role
  - (b) production role
  - (c) economic role
  - (d) social role
9. Unfair advertising is determined by the using of unauthorized techniques and methods of disseminating promotional information
- (a) False
  - (b) True
10. Advertising as a process typically involves the following components except
- (a) Advertisers
  - (b) Advertising resolution
  - (c) Advertising agencies
  - (d) Advertising audience

#### SECTION B (2 marks each)

11. Principles are fundamental truths upon which other truths depend and they explain the relationships between two or more variables.
12. Henri Fayol is the Father of Management while F.W. Taylor is the Father of Scientific Management
13. Two of the major proponents of the Psychology and human relations schools were Likert and Marj Parker Follett
14. The school of management science is also known as the Quantitative School
15. Harry Lippitt is known as one of the prominent proponents of the school of management science.
16. J.A.F. Stonor defined management as the process of planning, organising, leading and controlling the efforts of organisational members and the use of other organisational resources in order to achieve stated organisational goals
17. Two of the aspects of leading are \_\_\_\_\_ and \_\_\_\_\_
18. Two of the four types of decisional roles of managers include those of Entrepreneur and Monitor
19. Regarding skill types needed by managers per levels, top managers require more of \_\_\_\_\_ skill than other skills.
20. Two of the names associated with the behavioural science school are Likert and Frederick Herzberg

#### SECTION C (30 marks)

21. Define Pharmacy administration (4marks)
22. Two of the reasons why standard operating procedure (SOP) is so important in the pharmaceutical industry include
- (a) It is a regulatory requirement
  - (b) Improves efficiency (4marks)
23. The evolutionary history of management theories shows that the schools of management formed and developed in the 20th century were in the order of: (4marks)
24. Define Management (4marks)
25. Authority may be defined as \_\_\_\_\_ (4marks)
26. List the four approaches to management studies (4marks)
27. In the management of a community pharmacy business, the pharmacist has a twin (often conflicting) objectives of:
- (a) Customer Service Underlined by Professionalism
  - (b) Resource Utilization Business Profitability (4marks)
28. How do community pharmacists manage the twin objectives in their business?  
By balancing the two objectives for a successful CPP (2marks)

5 P's of Mgt are Man, money, machines, materials, market, management information, method, minutes.

CPP - Community Pharmacy Practice.

DEPARTMENT OF PHARMACEUTICAL AND MEDICINAL CHEMISTRY  
COLLEGE OF PHARMACY  
AFE BABALOLA UNIVERSITY  
2022/2023 Session; First Semester

PCH 301: Organic Pharmaceutical Chemistry I (Practical Examinations)

TIME ALLOWED: 3 Hours

23

GROUP: B

Matric Number:..

ATTEMPT ALL QUESTIONS

1. [Total: 40 marks]

- a. Sample E is a mixture containing two chemical substances. Carry out the assay below to recover the desired substance.
  - i. Weigh 1.8 – 2.0 g of sample E into a 250 mL conical flask and label as such. Add a pinch of boiling chip. Add 50 mL of hot water to the mixture and swirl.
  - ii. Place the flask on a hot plate and boil for 5 minutes.  
*Filter while hot and allow to cool.*
  - iii. Remove the flask from the hot plate and allow it to cool.
  - iv. Place the flask in an ice bath for 5-10 min to ensure complete crystallization.
  - v. When the flask is cold and crystallization is complete, filter the crystals by suction.
  - vi. Wash the crystals with 5 mL of ice-cold water, and repeat once.
  - vii. Dry the crystals in the oven at 50 °C and calculate the percentage yield of your dried product.
  - viii. Carry out the thin layer chromatography (TLC) of the product using 10 mL of sample F as mobile phase and calculate the  $R_f$ .
  - ix. Submit your product labeled with your matriculation number at the end of the experiment.
- b. State four precautions taken during the experiment.
- c. What is the role of boiling chips in the experiment?

2. [Total: 20 marks]

- a. A batch of paracetamol tablets produced by Drugfield Pharmaceuticals Limited was suspected to be fake. As a Quality Control Analyst, explain how you will ascertain the authenticity of the raw powdered drug. (Melting point of pure paracetamol: 169 – 171°C).
- b. What will be your recommendation to avoid any future occurrence?
- c. Write three (3) factors that determine the choice of solvent in crystallization technique.



- ✓3 a. For each of the following materials, state the best method for controlling microbial growth in them.

- i. Inoculating loop — Dry heat Rod butt
- ii. Glass slides — Dry heat, but air oven
- iii. Biohazard waste — Dry heat, incinerator
- iv. Test tubes/powders — Dry heat, hot air oven
- v. Milk — Pasteurization
- vi. drinking water — Boiling, moist heat
- vii. Serum — Tyndallization
- viii. Laminar flow — None
- ix. Antibiotics —
- x. Face mask —

10 marks

- b. How does population composition and local environment affect the activities of chemical agents?

4 marks

- c. List and explain briefly the mode of action of filters.

6 marks

- 4 a. Enumerate 4 advantages and 4 disadvantages of parenteral drug administration

4 marks

- b. What are small volume injections? Give 2 examples.

6 marks

- c. Non aqueous solvents are used to dissolve active substances and adjuvants used for parenteral products. Discuss.

10 marks

- ✓5 a. (i) State the steps involved in adjusting the tonicity of substance using the sodium chloride equivalent method.

4 marks

(ii) Calculate the sodium chloride equivalent of magnesium sulphate, having 80% dissociation in water. (MW magnesium sulphate = 120.4g/mol; i value NaCl=1.8; MW of NaCl=58.5)

8 marks

- b. (i) List 10 classes of sterile preparations in Pharmacy.

5 marks

- (ii) What is a colligative property? Give 2 examples

3 marks



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## COLLEGE OF PHARMACY

### DEPARTMENT OF PHARMACEUTICAL MICROBIOLOGY

#### COURSE TITLE: PRINCIPLES OF STERILIZATION AND ASEPSIS

#### COURSE CODE: PMB 301

#### FIRST SEMESTER EXAMINATION FOR 2022/2023 SESSION

DATE: 10<sup>th</sup> February, 2023

TIME ALLOWED: 2 HOURS 20 MINS

#### SECTION B: THEORY SECTION

#### Instruction:

- I. Answer **FOUR** questions in all, question **ONE** is **COMPULSORY**.
- II. Answer **EACH** question on a **FRESH PAGE**.

✓1. a. (i) With the aid of a diagram, describe how an autoclave works.

6 marks

(ii) Mrs Favour used 70% of disinfectant X to disinfect a material; she observed that when she increased the concentration of the disinfectant to 95%, the disinfectant was more effective. She therefore decided to also increase her 70% of ethanol to 95% for more efficiency. Did she make the right decision to increase the concentration of her ethanol? Give reason for your answer

4 marks

b. (i) Give 4 Classifications of ophthalmic preparations with one example each

2 marks

(ii) Find the quantity of boric acid (in grams) to be used in compounding the following prescription.

Rx                      Scopolamine HBr      0.7%  
                         Boric acid.                      q.s  
                         Purified water ad.      40 mL  
                         Make isotone. sol.  
                         Sig one drop in each eye.

(E value for scopolamine Hbr is 0.12 and E value for Boric acid is 0.52)

8 marks

✓2. a. (i) In a tabular form, differentiate between Rideal-Walker and Chick-Martin test.

6 marks

(ii) With graphical illustration only, describe the pattern of microbial death.

6 marks

\*b. Why do you think ionizing radiation is the choice for sterilizing sutures, plastic disposable supplies such as syringes, cannula and food items rather than non-ionizing radiation?

8 marks

- ✓4. a) Define drug-drug interaction [3 marks]  
 b) Mention 5 common drug-drug interactions [7 marks]  
 c) Highlight 5 Roles of Pharmacists in the prevention of drug-drug interactions [10 marks] {EOA}
5. a) Enumerate 5 reasons dosage form is an important consideration in gastrointestinal absorption [5 marks]  
 b) Discuss why some drugs are absorbed better with food and others are retarded by food? [5 marks]  
 c) Highlight the basic properties that allow for the rational design of drug products [4 marks]  
 d) Highlight 6 problems often associated with pre-formulation of drugs [6 marks] {EOA}

✓6. Consider the values in the table below obtained after oral administration of 300mg of phenytoin tablets

Time (hr)	$C_p$ (mg/L)	$(C_p + C_{p-1})/2$ (mg/L)	$t_x - t_{x-1}$ (hr)	$\sum_x (t_x - t_{x-1}) \times (C_p + C_{p-1})/2$
0	0	0	0	0
1	1	0.5	1	0.5
2	2	2.5	1	2.5
5	4.5	3	3	9
10	5	4.5	5	22.5
15	3.6	3.9	5	19.5
20	3.3	3.5	5	17.5
50	0.5	0.7	30	21

- a) Calculate the missing values in the table [8 Marks]  
 b) Calculate the  $AUC_{0-20}$  and  $AUC_{0-50}$  with appropriate units [6 Marks]  
 c) Given that the elimination rate constant ( $K_e$ ) for phenytoin is 0.050/hr and half-life is 0.693/ $k_e$ , calculate the half-life of the drug [6 Marks] {POE}



- A.
- B.
- C.
- D.
- E.
- F.
- G.
- H.
- I.
- J.

2. Study the table below and answer the questions that follow.

*Capacity Use duration test*

Disinfectant	Dilution	Growth of test organism in subculture after exposure for:			
		2.5 mins	5 mins	7.5 mins	10 mins
Test Disinfectant	1:400	NG	NG	NG	NG
	1:500	G	NG	NG	NG
	1:600	G	G	NG	NG
	1:700	G	G	G	NG
	1:800	G	G	G	G
Phenol	1:95	G	NG	NG	NG
	1:100	G	G	NG	NG
	1:105	G	G	G	NG
	1:110	G	G	G	NG
	1:115	G	G	G	G

- i. Calculate the phenol coefficient of the test disinfectant after 7.5 minutes.
- ii. What does your answer indicate?

3. Study the table below and answer the questions that follows.

*In Use test*

Concentration of test disinfectant	Inoculum count	Challenge number			Result
		1	2	3	
1.0	$2 \times 10^9$	+++++	+++++	+++++	
1.5	$2 \times 10^9$	----+	+++++	+++++	
2.0	$2 \times 10^9$	----+	---++	+++++	
2.5	$2 \times 10^9$	-----	-----	----+	

- i. Write the result for each of the concentration using either Pass/fail.
- ii. What is the name of the test represented with the table above?

- Page
18. The addition of a different substance to a drug in lieu of the actual certified component is called Substitution.
  19. A high ash value indicates Contamination.....
  20. High moisture content in crude drug prevents deterioration by aiding microbial growth, True or False

## Section B

Climate, Rainfall, Soil, Temperature, Humidity, Altitude, Length of day

1a. Mention Seven (7) factors affecting Cultivation

b. Briefly discuss any two of the factors stated above.

2. What is the Importance of studying Enzymes in Pharmacognosy?

3. Describe Papain and state its uses

4. List Five (5) Physical Parameters used in the Evaluation of Crude Drugs

- Total ash.
- Extractive value.
- Moisture content.
- Volatile Oil.
- Refractive Index.
- Optical Refraction.

Physical Parameters

Biological Parameters:

- Microbial Contamination
- Total viable count
- Aflatoxin content.
- Pharmacological parameters
- Toxicology Parameters

Rainfall  
Temperature  
Soil  
Altitude  
Climate  
Humidity  
Length of day

Drying is the removal of sufficient moisture content from crude drug so as to improve its quality and make it resistant to the growth of microorganisms.

Substitution

Contamination

True or False

Substitution

Quality - means 5th low or 5th of low quality. Substandard.

High moisture content leads to the Spoilage due to deterioration and micro





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ESTD 2004

COLLEGE OF PHARMACY

24<sup>th</sup> November, 2022

DEPARTMENT OF PHARMACOGNOSY AND NATURAL PRODUCTS

MID-SEMESTER TEST 2022/2023 SESSION

COURSE CODE: PCG 301

TIME ALLOWED: 60MINS

COURSE TITLE: PHARMACOGNOSY I

Instruction: Answer ALL Questions in Sections A and B.

Section A

1. Medicinal plants can be collected from wild and Cultivation Sources.
2. Cultivation ensures quality and purity of medicinal plants..... True or False
3. Cultivation ensures irregular supply of crude drugs..... True or False
4. Name the two methods of propagation of medicinal plants Seeds & Vegetative.
5. Gibberellic acid promotes the germination of dormant seeds..... True or False
6. What enzymes are indicated in the treatment of pancreatitis.....?
7. As a Pharmacist, what enzyme medication would you recommend for dyspepsia?
8. What is an autocatalytic enzyme? Give an example
9. Give two reasons why we rely on microorganisms for the production of enzymes in modern Pharmacognosy
10. Pancreatic amylase is a  $\beta$ -amylase, True or False
11. Resins are amorphous solid or semi solid substances that are water insoluble but mostly soluble in alcohol..... (a) amorphous, alcohol, water (b) non amorphous, alcohol, water (c) non amorphous, water, alcohol (d) amorphous, water, alcohol
12. .... are found to be hard, translucent or transparent and fusible.  
(a) Chemically, resins (b) Physically, oleoresins (c) Physically, resins (d) Chemically, oleoresins
13. Oleoresins are semi-solid extracts composed of resin and ..... obtained by evaporation of the solvents used for their production. (a) Olive oil (b) Corn oil (c) Vegetable oil (d) essential or fatty oil
14. .... are prepared from ..... e.g. ginger, basil, nut meg, thyme, balsam, Indian bay leaves etc. (a) Oleoresins, spices (b) Resins, exudates (c) Oleoresins, exudates (d) Resins, spices
15. .... causes the body to make substances that fight pain and swelling.  
(a) Bromelain (b) Malt extract (c) Papain (d) Oleoresin
16. Volatile oil is used to standardize drugs which the efficiency is due to odourous principles
17. The apparatus used for volatile oil content determination is Clevenger's Apparatus Antimicrobial microorganism

LEVENGERS APPARATUS

Coz they are gotten from plants which are beneficial in Pharmaceutical industry

Clevenger's

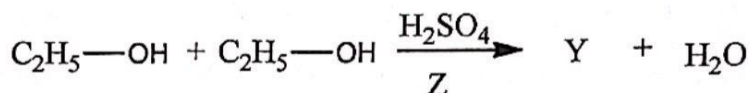


## ✓ Question 2.

(a) The rate of the  $S_N1$  reaction does not depend on the nature of the nucleophiles, while the rate of the  $S_N2$  reaction strongly depend on the nature of the nucleophiles. Explain this statement and give example(s) where necessary.

(8 marks)

(b) Bimolecular dehydration is used for the synthesis of symmetrical ethers from  $1^\circ$  alcohols. Write out the (i) structure of the product Y and (ii) what Z is in the equation below and (iii) describe the mechanisms involved in the reaction:



(iv) State the type of mechanism that this reaction undergoes to yield the ether.

(8 marks)

## ✓ Question 3.

(a) Differentiate between oxidative and reductive ozonolysis reactions of alkene. Support your answer with simple organic chemical reactions. (8 marks)

(b) Illustrate using appropriate equations, the reaction conditions for preparation of the following:

i. Syn-diols from alkenes

ii. Carboxylic acid from alkynes

(8 marks)

## Question 4.

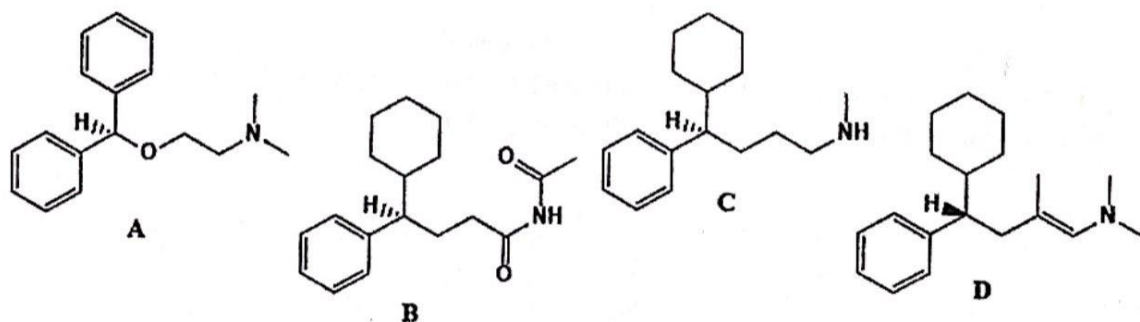
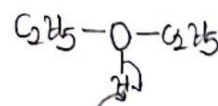
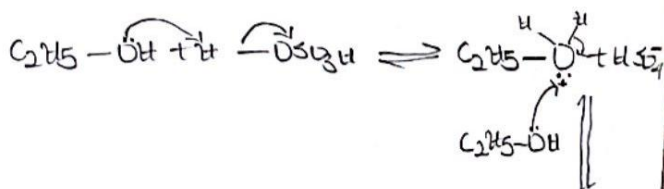
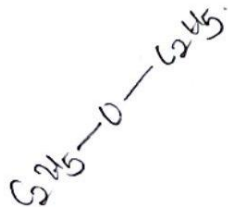
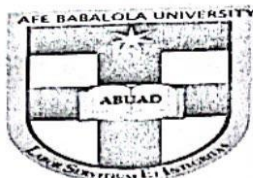


Figure Q

(a) Using appropriate explanation rank compounds A, B, C, and D (Figure Q) in order of decreasing basicity. (8 marks)

(b) Acidity and basicity attributes of organic compounds often dictate gastrointestinal absorption. Which of compounds B, and C would be best absorbed in the stomach, and why? (8 marks)





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## COLLEGE OF PHARMACY

### PHARMACEUTICAL MICROBIOLOGY AND BIOTECHNOLOGY DEPARTMENT

#### COURSE TITLE: PHARMACEUTICAL MICROBIOLOGY I

COURSE CODE: PMB 301

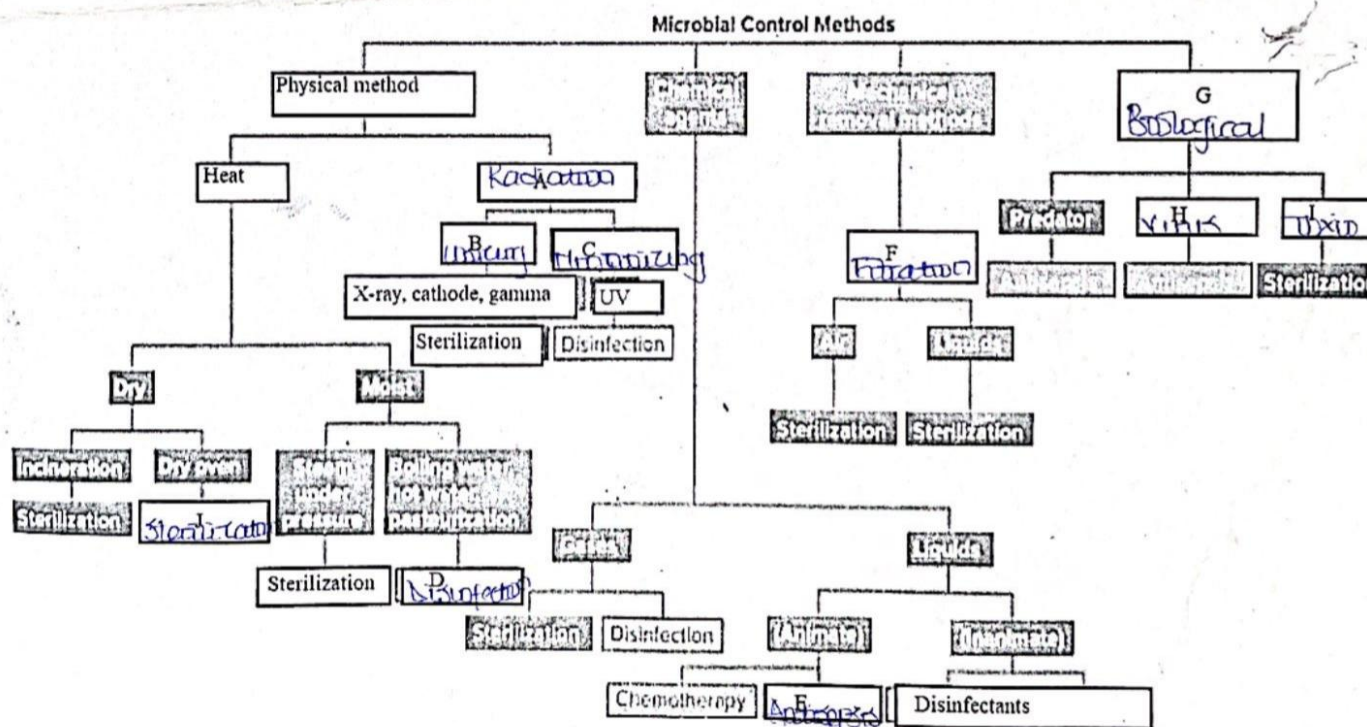
MID-SEMESTER TEST, 2022/2023 SESSION

23<sup>rd</sup> November, 2022

INSTRUCTION: Answer TWO questions only: Question 1 (compulsory) and any other question.

TIME: 30 MINS.

1. Carefully study the diagram below and fill the blank boxes appropriately. The boxes are labeled with letters, ensure you fill in the answer for the right letters.



## SECTION C (Essay Questions)

### Instructions:

- Answer ANY THREE (3) QUESTIONS in Section C in the answer booklet provided
- Answer each question on a fresh page of the answer booklet
- Each question carries 12 marks.

- ✓ 1. (a) Define adsorption isotherm and list two popular adsorption isotherm models.  
(b) Discuss how temperature and surface area of an adsorbent will influence the rate of adsorption.
2. Explain application of adsorption in the followings:  
(a) Content uniformity of low dose drug  
(b) Enhancement of drug bioavailability  
(c) Prevention of drug sublimation during storage
- ✓ 3. (a) Describe extensively the behavior of surfactant molecules in a solution at low concentration, increased concentration, critical micelle concentration, above critical micelle concentration and below critical micelle concentration.  
(b) Mention two usefulness and two limitations of micelles in production of pharmaceuticals. *drug delivery system*  
*solubilization aids*
- ✓ 4. a) Using the DLVO theory, explain the stability of colloidal systems stating its assumptions.  
b) Derive an equation for the determination of surface tension of a liquid by capillary rise.

$$\gamma = \frac{r h \rho g}{2}$$

*dyne/cm*

$$2\pi r \gamma \cdot \pi r^2 \cdot h \cdot \rho \cdot g$$



(11) How would you interpret the expected results in Q10 above

12) A new molecule has just been discovered, the owners of the patent are interested in formulating the compound into a suitable dosage form. He wants you to help design an experiment to evaluate the different dosage forms in terms of onset of action and convenience of administration. Given that the drug is a sedative /hypnotic.

Give a description of the experiment in terms of; animals, drug administration, onset of action, sleeping time and interpretation of expected results with the aid of a table.

(13) Enumerate five(5) factors that will influence the choice of the route by which a drug is administered

(14) I) the routes of drug administration is classified broadly into-----

II) Give an example in each category

III) Which route delivers 100% of the drug into the blood stream.

(15) A traditional herbal practitioner has just prepared a concoction named Conc Zee. He wants to know the dose that will be effective, toxic and lethal. Kindly assist him in designing an animal experiment to evaluate the relationship between increasing dose and response.

Give a description of the experimental design in terms of; the equipment to use, animals, administration of the drugs, results to expect and interpretation with the aid of a graph.

(16) I) when does anaesthesia begin in an experimental animal

II) describe the termination of anaesthesia in an experimental animal

(17) I) Define sleeping time

II) Define the terms  $ED_{50}$  and  $LD_{50}$

III) What is the relationship between  $ED_{50}$  and  $LD_{50}$

(18) I) What will be the expected response of a rat ileum to acetylcholine in the presence of Atropine

II) Which receptors are at work in this case

(19) The response of a smooth muscle cell in a laboratory to a stimulus can be observed as ----  
-- or-----

(20) The stimuli type could be; I), II), III) or IV)



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**DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY  
COLLEGE OF PHARMACY  
FIRST SEMESTER, EXAMINATION 2022/2023 SESSION**

**Course code: PCO 301**

**Level: 300**

**Course Title: GENERAL PRINCIPLES OF PHARMACOLOGY (ALTERNATIVE TO PRACTICAL)**

**Time Allowed: TWO HOURS**

**Date: 27<sup>th</sup> JANUARY 2023**

**INSTRUCTIONS:**

**ATTEMPT ALL QUESTIONS**

**Write your Matriculation number in the space provided in your answer booklet**

- (1) Briefly describe the uses / laboratory applications of the following laboratory equipment .
  - I) Water bath, II) Organ Bath, III) Rota Rod, IV) Chemical Balance
  - V) Kymograph,
- (2) I) Enumerate seven (7) laboratory rules
  - II) Enumerate the lab rules to apply in the event of an emergency
  - III) Describe how a student should dress to the laboratory
- (3) The nervous system as a whole is divided into two subdivisions I) & II)
  - iii) The Central Nervous System is made up of -----
- (4) I) List three (3) requirements for the survival of a freshly isolated tissue while handling it.
  - II) Briefly explain any two
  - III) Mention the type of solutions that should be used in tissue experiments,
  - IV) Name three examples of such solutions.
- (5) I) Define the term Affinity

Answer true or false to the following statements about affinity



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**DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY  
COLLEGE OF PHARMACY  
FIRST SEMESTER, EXAMINATION 2022/2023 SESSION**

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    - III) Mention the type of solutions that should be used in tissue experiments,
    - IV) Name three examples of such solutions.
  - (5) I) Define the term Affinity

**Answer true or false to the following statements about affinity**



- II) A drug with a higher affinity for a receptor can compete with or displace another drug that binds the same receptor but has a lower affinity.
- III) If a drug has a high affinity for a receptor, it must necessarily produce a response.
- IV) The affinity of a drug is inversely proportional to its potency.
- (6) I) Define the term Efficacy

Answer true or false to following statements about efficacy

- II) Synergy describes cases in which two drugs that individually produce similar effects (similar efficacy) can yield a super-additive effect when they are combined together
- III) A drug, when occupying the receptor, does by default produce one standard unit of response
- IV) A drug, when occupying the receptor may produce a complete response, or no response, or some partial response.
- (7) Describe the process involved in serial dilution
- II) In serial dilution, the dilution factor of each tube in a set is

Volume of Sample/Volume of Sample + Volume of Diluent; True/False

- (8) The table below is a one in ten (1:10) serial dilution of drug A to the fourth dilution, complete the mathematics and dilution rows.

Tube	1	2	3	4
Aliquot	1ml	1ml	1ml	1ml
Diluent	9ml	9ml	9ml	9ml
Maths	1/10			
Dilution	1:10			

- (9) I) How would you make 500ml of a 1:250 dilution
- II) What would be the concentration of a solution made by adding 200ml of water to 50.0ml of 4.0M KOH
- (10) A researcher just isolated two compounds from two different plants. He is interested in knowing the effects these compounds A&B will have on an isolated tissue e.g. a rat ileum, he approaches you as a Pharmacy student to help design an experiment to evaluate the effects of drugs A and drug B on the tissue. It is given that drug A stimulates the tissue while drug B opposes the effects of drug A.

Give a description of the experimental design in terms of; the equipment to use, sequence of administration of the drugs, results to expect.

300 LVL

300 LVL 1st SEMESTER

2022/2023