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University Examinations 2023/2024

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN MEDICAL LABORATORY

HMM 3425: PHARMACOGNOSY PHYTOTHERAPY

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS:

- (i) The paper consists of **Three** Sections
 - (ii) Section A: Multiple Choice Questions
 - (iii) Section B: Short Answer Questions
 - (iv) Section C: Long Answer Questions
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SECTION A: ANSWER ALL QUESTIONS

1. Which of the following is not a type of medicinal plant substance?
 - a) Alkaloids
 - b) Carbohydrates
 - c) Terpenoids
 - d) Glycosides
 2. Which historical period saw extensive use of medicinal plants, contributing to the foundation of pharmacognosy?
 - a) Renaissance
 - b) Industrial Revolution
 - c) Ancient civilizations
 - d) Enlightenment
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3. Which of the following is a primary concern when dealing with toxic plants in pharmacognosy?
 - a) Enhancing medicinal properties
 - b) Ensuring proper storage
 - c) Avoiding accidental poisonings
 - d) Increasing plant yield
4. Ethnopharmacognosy is closely linked to:
 - a) Modern drug manufacturing processes
 - b) Traditional medicine practices of specific cultures
 - c) Animal-based pharmacological research
 - d) Pharmacoeconomics and drug pricing strategies
5. What is emphasized on drug prescription in pharmacognosy
 - a) Using only laboratory-synthesized drugs.
 - b) Excluding plant-based medications due to their variability.
 - c) Understanding the therapeutic properties of natural compounds.
 - d) Ignoring cultural and historical uses of medicinal plants.
6. What distinguishes phytotherapy from traditional herbal medicine?
 - a) Phytotherapy exclusively uses synthetic compounds.
 - b) Phytotherapy does not consider the medicinal properties of plants.
 - c) Phytotherapy integrates scientific research with traditional knowledge.
 - d) Phytotherapy disregards potential side effects of herbal remedies
7. Which factor is crucial for ensuring the quality of natural products in pharmacognosy?
 - a) Quantity of active compounds
 - b) Geographical location of plant cultivation
 - c) Absence of pesticides and contaminants
 - d) Color and aroma of the product.
8. Which microscopic property is commonly utilized to identify the cellular structure of a crude drug?
 - a) Cell wall thickness
 - b) Cell arrangement
 - c) Cell coloration

- d) Cell nucleus
9. What physical property of crude drugs is crucial for assessing their moisture content and potential for microbial growth?
- a) Density
 - b) pH
 - c) Water activity
 - d) Dryness
10. What physicochemical property is often assessed to determine the stability of active compounds in a crude drug?
- a) Solubility
 - b) Refractive index
 - c) Specific gravity
 - d) Oxidation Susceptibility
11. What herbal medicine interaction occurs when one herb enhances the effects of another herb or drug?
- a) Synergistic interaction
 - b) Antagonistic interaction
 - c) Additive interaction
 - d) Parallel interaction
12. Which factor is crucial to consider when determining the appropriate dosage of an herbal medicine?
- a) Patient's age
 - b) Patient's weight loss
 - c) Severity of the condition being treated
 - d) Skin color
13. In which geographical region of Kenya would you most likely find medicinal plants adapted to arid and semi-arid conditions?
- a) Eastern region
 - b) Nyanza region
 - c) Central region
 - d) Rift valley region

14. What precaution should be taken during the collection of medicinal plants to avoid depletion and ensure sustainability?
- a) Harvesting only mature plants
 - b) Harvesting indiscriminately
 - c) Harvesting during the rainy season
 - d) Harvesting immature plants
15. Which drying method is commonly used in Kenya to preserve the potency of medicinal plants while minimizing degradation?
- a) Direct Sun drying
 - b) Oven drying
 - c) Shade drying
 - d) Freeze drying
16. What aspect of phytotherapy makes it appealing to modern medicine?
- a) Its historical use in traditional medicine
 - b) Its potential for drug standardization and quality control
 - c) Its reliance solely on anecdotal evidence
 - d) Its cost effectiveness
17. Which of the following best describes glycosides?
- a) Sugars derived from plants
 - b) Compounds consisting of a sugar molecule attached to a non-sugar moiety
 - c) Lipids found in plant tissues
 - d) Fatty acids
18. What class of compounds are coumarins and furanocoumarins categorized under?
- a) Flavonoids
 - b) Terpenoids
 - c) Bitter principles
 - d) Sweet capsules
19. Which of the following herbal remedies is commonly used in phytotherapy for promoting wound healing and relieving skin irritation?
- a) Echinacea
 - b) Aloe Vera

- c) Ginkgo biloba
 - d) St. John's Wort
20. Which of the following is an example of a nutraceutical?
- a) Aspirin
 - b) Omega-3 fatty acids
 - c) Antibiotics
 - d) Panadol

SECTION B

ANSWER ALL QUESTIONS

1. List five requirements for medicinal raw materials in pharmaceutical industry. (5marks)
2. What re Flavonoid glycosides and how do they contribute to human health. (5marks)
3. Outline the purpose of curing in medicinal plants and give four examples of curing
(5 marks)
4. Outline the process of isolating active constituents from plant extracts. Include the key steps involved and the techniques commonly used for isolation. (5 marks)
5. Discuss the safety considerations associated with the use of herbal dyes in traditional medicine (5 marks)
6. During the collection of medicinal plants, mention five precautions that should be taken to avoid depletion and ensure sustainability. (5 marks)
7. What is the significance of cardiotoxic glycosides in the management of cardiovascular conditions in herbal medications? (5 marks)
8. Discuss the role of anthraquinones in traditional medicine and their potential pharmacological effects. (5 marks)

SECTION C

ANSWER ANY TWO QUESTIONS

1. Discuss the legal considerations of alternative medicine in Pharmacognosy in safeguarding public health. (20 marks)

2. Explain how environmental factors affect the growth of medicinal plants (20 marks)
3. Discuss the role of phytotherapy in the following areas, giving atleast two examples of herbs in each. (20 marks)
 - i. Eye
 - ii. Skin
 - iii. Nose
 - iv. Ear
 - v. Endocrine system