



October University for Modern Sciences & Arts Midterm Exam MODEL ANSWER

Faculty	Pharmacy
Department	Pharmacognosy
Module Code	PHG112 (Year 1)
Module Title	Pharmacognosy
Semester	Spring 2025
Date	20/03/2025
Time Allowed	1 hour
Total Mark	30 Marks
No. of Pages	4
Material provided	-
Equipment permitted	-
Additional Instructions	All Answers must be in English otherwise it will not be considered.

No books, paper or electronic devices are permitted to be brought into the examination room other than those specified above.

ALL QUESTIONS SHOULD BE ANSWERED

30 Marks

Question 1:

(9 marks, 0.75 marks each)

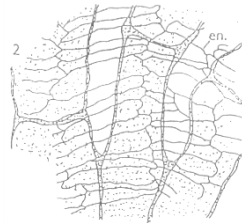
Choose the correct answer

- 1- is the structure of the seed enclosed within the testa.
a- Micropyle b-Hilum **c- Kernel** d- Chalaza e-Plumule
- 2- Arillus is a type of outgrowth of the testa present in.....seeds.
a- Strophanthus **b-Cardamom** c-Nutmeg d-Colchicum e-Castor
- 3-The is the whole product of the development of gynaecium after fertilization.
a- Seed b-Testa c-Kernel **d- Fruit** e- Pericarp
- 4-..... results because the coats at the apex are not quite complete leaving a scar on the seed.
a- **Micropyle** b-Hilum c- Kernel d- Chalaza e-Plumule
- 5- is a term used to describe any product derived from food sources with extra health benefits.
a- Cosmeceuticals b-Pharmacognosy **c-Nutraceuticals** d-Herbal medicine e-Phytochemistry
- 6- seeds are used as analgesic in urinary disorders.
a- Nigella b-Castor c- Foenugreek d- Jojoba **e- Pumpkin**
- 7-..... is the main key element used for the identification of linseed.
a- **Mat-like structure** b- Basket like cells c-Endosperm d-Glandular hair e-Palisade-like epidermal cells
- 8- Proteins in the seeds can be tested by..... reagent.
a- Mayer's b-Iodine c- Sudan III **d- Millon's** e-Ruthenium red
- 9-..... is the innermost layer of the fruit surrounding the ovary or the seeds.
a- Epicarp b- Mesocarp **c-Endocarp** d- Cremocarp e- Pericarp
- 10- Umbelliferous fruits are classified as..... fruits.
a-False b-Dehiscent c-Indehiscent **d-Schizocarpic** e-Polycarpous
- 11-is a minute thread that lies between the two mericarps of Umbelliferous fruits.
a- Stylopod b-Cremocarp **c- Carpophore** d-Primary ridge e-Secondary ridge
- 12-..... is the compound responsible for the taste and smell of anise.
a- **Trans-anethole** b- Linalool c- Fenchone d- Dianethole e-Dianisidine

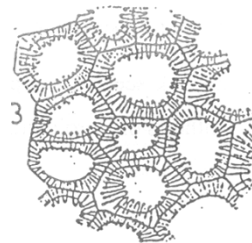
Question 2:

(12 Marks, 2 marks each)

Answer ONLY SIX of the following questions



(A)



(B)

a- Identify the key element shown in figure (A), mention the name of the drug and its uses.

Branched vittae crossed by parallel endocarp- Anise-Uses:

- 1- For respiratory tract infections, cough, bronchitis
- 2- Carminative & relieving colic in children.
- 3- Has a sedative action
- 4- In folk medicine, lactagogue, emmenagogue
- 5- Oil is also employed in the food & drink industry as flavoring agent

b- Identify the key element shown in figure (B), mention the name of the drug and its contraindications.

Basket like cells-Foenugreek-Contraindications:

- 1-The hypoglycemic activity of foenugreek may interfere with an existing hypoglycemic therapy.
- 2-Oxytotoxic and uterine stimulant activity, the use of foenugreek during pregnancy and lactation in doses greatly exceeding those normally encountered in foods is not advisable.

c- Castor seeds can't be used medicinally due to their toxicity. Comment on this statement.

The plant including the seeds contains an irritant substance named Ricin that poisons the blood. N.B: One of the most potent natural toxins known. One seed can kill a child.

The oil is safe because the poison remains in the seed where seeds themselves and the cake left after the expression of the oil are violently purgative.

d- Anise should be collected cautiously. Rationalize.

Because it could be adulterated with hemlock due to its similarity in the morphological characters. Hemlock is poisonous as it contains the alkaloid coniine which is a powerful neurotoxin that will cause death due to respiratory paralysis.

e- Compare the cosmeceutical applications of jojoba oil and foenugreek oil

Jojoba:

1. Moisturises Hair
2. Promotes Hair Growth & Thickness
3. Repairs Damage from Heat & Styling Tools
4. Maintains Scalp's Natural Balance
5. Controls Dandruff

Foenugreek:

1. It helps **strengthen hair follicles**, promote healthy hair growth, and reduce issues like hair breakage and thinning.
2. **Skin rejuvenation**: Incorporate fenugreek oil into your skincare routine to revitalize and rejuvenate your skin.
3. **Anti-collagenase** activity and increased collagen production anti-aging remedy
4. It helps **moisturize**, soothe inflammation.

f- Fennel is usually added to purgative preparations. Rationalize.

It regulates the peristaltic function of GIT and relieves the associated pain and cramping. Used with purgatives to allay their gripping effect.

g- Chia and quinoa seeds are nutraceuticals that should be included in the dieting plans of obese patients. Comment on this statement.

Because both are rich in dietary fibers and proteins that will take time for digestion so it will give a sensation of fullness that will be reflected on their dietary intake.

Question 3:

(9 marks)

- a- A 28-year-old pregnant lady was suffering from constipation. Suggest a suitable laxative mentioning its main active constituents (1 mark), design a nutritional plan to provide her with all the essential nutrients during her pregnancy (1 mark) and after the delivery (1 mark), showing what she should eat/drink and what she should avoid.**

Psyllium seed-1-Acidic mucilage (10 – 12 %)- 2- Small amount of glycosides- 3- Fixed oil - protein.

During pregnancy: To eat/drink: Chia seeds – Quinoa seeds

To avoid: Linseed - Fenugreek- Evening primrose- Ammi visnaga-Anise

After delivery: To eat/drink: Fenugreek-Anise-Fennel

To avoid: ---

- b- A teenager was experiencing a pigmentary disorder of the skin that is characterized by depigmented patches. Diagnose his case and suggest a drug for treatment (1 mark). What should you warn him about this drug (1 mark). How can you ensure the purity of this drug before giving it to the patient (1 mark).**

Vitiligo- Ammi visnaga- Photodermatitis in sensitive individuals- Ammi visnaga boiled in water then add NaOH gives rose red colour

- c- Designing new drugs could be guided by natural products, in which the plant metabolites could act as nuclei for the creation of semi-synthetic medications. Based on your studies, provide 2 different examples of metabolites isolated from seeds and fruits origins (0.5 marks each) and mention their corresponding drugs (0.5 marks each) and uses (0.5 marks each).**

Eserine: Semi synthesis of rivastigmine used to treat dementia in Alzheimer disease

Shikimic acid: is used in the manufacture of oseltamivir (Tamiflu), a flu treatment

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Assessment of Achievement of Module LOs:

Midterm Written Exam				
Question Number	Type of Questions according to Bloom's taxonomy	Marks	Marks %	Module LOs (As numbered in module specifications)
1	Knowledge	9	6%	1-1-1-1-1 ,1-1-4-1-1 ,2-3-1-1-1
2	Comprehension	12	8%	1-1-1-1-1 ,1-1-4-1-1
3	Application Comprehension	9	6%	1-1-1-1-1 ,1-1-4-1-1 ,2-3-1-1-1
Total		30 Marks	20%	