



UNIVERSITI KUALA LUMPUR
ROYAL COLLEGE OF MEDICINE PERAK

FINAL EXAMINATION
MARCH 2026 SEMESTER

COURSE CODE : RCB11002
COURSE NAME : PHARMACOGNOSY I
PROGRAMME NAME : BACHELOR IN PHARMACEUTICAL TECHNOLOGY
(HONOURS)
DATE : 2 JULY 2026
TIME : 2.30 PM – 4.30 PM
DURATION : 2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read CAREFULLY the instructions given in the question paper.
2. This question paper has information printed on both sides of the paper.
3. This question paper consists of TWO (2) sections; Section A and Section B.
4. Answer ALL questions in Section A. For Section B, answer THREE (3) questions WITH AT LEAST ONE (1) question from question 3 or question 4.
5. Please write your answers on the OMR answer script and answer booklet provided.
6. Answer all questions in English language ONLY.

THERE ARE 9 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)

I) MULTIPLE CHOICE QUESTIONS (20 marks)

INSTRUCTION: Answer ALL questions.

Use the OMR sheet provided.

1. Select the **CORRECT** plant rhizomes used in traditional Jamu.
 - I. *Curcuma domestica*
 - II. *Zingiber zerumbet*
 - III. *Cinnamomum burmanii*
 - IV. *Kaempferi galangal*
 - A. I and II
 - B. III and IV
 - C. I, II, and IV
 - D. I, III, and IV
 - E. I, II, III, and IV
2. Select the **CORRECT** natural sources of drugs in Traditional Chinese Medicine.
 - I. Fungi
 - II. Human placenta
 - III. Dried seahorse
 - IV. Plants
 - A. I, II, and III
 - B. II, III, and IV
 - C. I, II, and IV
 - D. I, III, and IV
 - E. I, II, III, and IV
3. Identify the crude drug obtained from the bark of a plant.
 - A. Cassia
 - B. Senna
 - C. Rauwolfia
 - D. Artemisia
 - E. Glycyrrhiza

4. Identify the plant source of digoxin.
- A. *Andrographis paniculata*
 - B. *Centella asiatica*
 - C. *Eurycoma longifolia*
 - D. *Digitalis lanata*
 - E. *Salix alba*
5. Select the **CORRECT** types of organized drugs.
- I. Ephedra stem
 - II. Cinnamon bark
 - III. Guar gum
 - IV. Ginger root
 - A. I, II, and III
 - B. II, III, and IV
 - C. I, II, and IV
 - D. I, III, and IV
 - E. I, II, III, and IV
6. Identify the classification method of crude drugs according to the therapeutic potential of their active constituents.
- A. Chemical classification
 - B. Taxonomical classification
 - C. Pharmacological classification
 - D. Alphabetical classification
 - E. Morphological classification
7. Select the **CORRECT** types of stoma found in plant leaves.
- I. Diacytic
 - II. Anisocytic
 - III. Actinocytic
 - IV. Monocytic
 - A. I, II, and III
 - B. II, III, and IV
 - C. I, II, and IV
 - D. I, III, and IV
 - E. I, II, III, and IV

8. Identify the area where oil glands are commonly found in clove flower bud.
- A. Between vascular bundle
 - B. Below epidermis
 - C. Within aerenchyma
 - D. Under the epicarp
 - E. Around columella
9. Which of these is controlled by hormones in plants?
- A. Disease prevention
 - B. Leaf fall
 - C. Soil pH levels
 - D. Water absorption rate
 - E. Sunlight intensity
10. How does immediate processing of medicinal plants after harvest primarily help preserve their quality?
- A. By increasing the water content of the plants.
 - B. By encouraging the generation of new active compounds.
 - C. By making the plants more visually appealing.
 - D. By stopping degradation from natural plant processes.
 - E. By increasing the usage of pesticides on the plants.
11. A farmer notices weeds growing in their crop field. What is the most direct negative impact these weeds will have on the crops?
- A. They will attract more beneficial insects to the field.
 - B. They will cause loss of nutrients, water, and light for the crops.
 - C. They will cause changes in humidity of the field.
 - D. They will provide extra shade for the crops.
 - E. They will make the crops grow taller.

12. Choose the **CORRECT** chemicals that are used as Biuret reagent.
- I. Potassium hydroxide
 - II. Copper (II) sulphate
 - III. Naphthanol
 - IV. Sodium potassium tartarate
- A. I and II
B. III and IV
C. I, II, and III
D. I, II, and IV
E. I, II, III, and IV
13. How is the moisture content of a crude drug typically determined?
- A. By boiling the drug and measuring the evaporated water.
B. By crushing the drug and observing its texture.
C. By using freeze dryer for 3 days.
D. By it to sunlight and checking for dryness.
E. By heating it in an oven at 105°C to a constant weight.
14. Select the **CORRECT** reagent to detect protein in plants.
- A. Eosin
B. Safranin
C. Alcoholic picric acid
D. Ruthenium red
E. Iodine
15. Choose the **CORRECT** fungi that produce aflatoxin.
- I. *Aspergillus flavus*
 - II. *Penicillium islandicum*
 - III. *Aspergillus niger*
 - IV. *Aspergillus fumigatus*
- A. I and II
B. III and IV
C. I, II, and III
D. I, II, and IV
E. II, III, and IV

16. Identify the classification of Orellanine mushroom toxins as poisonous mushroom.
- A. Class I
 - B. Class II
 - C. Class III
 - D. Class IV
 - E. Class V
17. What is the chemical constituent from the phenanthrene group in opium?
- A. Rutin
 - B. Quercetin
 - C. Papaverine
 - D. Narcotine
 - E. Morphine
18. What is the primary purpose of a herbarium?
- A. To collect and classify dried plant specimens.
 - B. To provide a live garden for public viewing.
 - C. To rare the plantlets for nurseries.
 - D. To grow new species of plants for research.
 - E. To sell rare and exotic plant samples.
19. A botanist wants to quickly access plant data from multiple institutions worldwide. Which resource would be most efficient?
- A. Rely solely on local plant guides.
 - B. Request printed catalogs from each location.
 - C. Visit each physical herbarium individually.
 - D. Use integrated online access to botanical information.
 - E. Ask botanical experts from different universities.

20. A student claims that digitizing all herbarium collections will solve all challenges in botanical research by making all physical specimens obsolete. Evaluate this claim.
- A. The claim is irrelevant, as digital and physical herbaria are entirely separate concepts.
 - B. The claim is completely correct, as digital access is always superior.
 - C. The claim is partially correct, as digital access is beneficial but physical specimens still hold unique value.
 - D. The claim is incorrect, as physical specimens are not useful anymore.
 - E. The claim is incorrect, as digital access is limited to the officer in charge.

II) SHORT ANSWER QUESTIONS (20 marks)**INSTRUCTION: Answer ALL questions in the answer booklet provided.****Each question carries TWO (2) marks.**

1. Describe crude drugs.
2. State **TWO (2)** crude drugs obtained from plant rhizomes.
3. Describe pharmaceutical aids.
4. State **TWO (2)** importance of morphological and histological studies of plants.
5. Describe chemical drying using desiccators.
6. State **TWO (2)** physiochemical factors that cause deterioration in crude drugs.
7. State **TWO (2)** plant components that can be measured using the swelling index.
8. State **TWO (2)** chemical tests for cardiac glycoside.
9. State **TWO (2)** symptoms of poisoning from *Conium maculatum*.
10. State **TWO (2)** details that are needed in a field label.

SECTION B: MODIFIED ESSAY QUESTIONS (Total: 60 marks)

INSTRUCTION: This section consists of **FOUR (4)** questions.

You are required to answer **THREE (3)** questions in the answer booklet provided.

Question 1 and 2 are COMPULSORY.

Answer EITHER Question 3 OR 4.

Question 1

- (a) Describe **TWO (2)** advantages and **TWO (2)** disadvantages of pharmacological classification method. (4 marks)
- (b) Describe **FOUR (4)** advantages and **TWO (2)** disadvantages of alphabetical classification method. (6 marks)
- (c) Differentiate organized and unorganized drugs. (10 marks)

Question 2

- (a) Suggest **FIVE (5)** methods of pest control that can be advised to a medical herbalist that notices a large amount of pests in extracts of medicinal plants. (10 marks)
- (b) Explain the classifications of endangered species classification by International Union for Conservation of Nature (IUCN). (10 marks)

Question 3

- (a) Describe **THREE (3)** categories of cell inclusions with an example for each category. (6 marks)
- (b) Describe **TWO (2)** common forms of trichomes in plants. (4 marks)
- (c) Explain the chemical tests for the detection of saponins. (10 marks)

Question 4

- (a) Describe **THREE (3)** types of calcium oxalate crystals with an example each. (6 marks)
- (b) Describe ergastic substances. (4 marks)
- (c) Explain the physical evaluation of foreign organic matter and volatile oil content in crude drugs. (10 marks)

END OF EXAMINATION PAPER