



UNIVERSITI KUALA LUMPUR
ROYAL COLLEGE OF MEDICINE PERAK

FINAL EXAMINATION
MARCH 2026 SEMESTER

COURSE CODE : RCB10102
COURSE NAME : INTRODUCTION TO PHARMACEUTICS
PROGRAMME NAME : BACHELOR IN PHARMACEUTICAL TECHNOLOGY
(HONOURS)
DATE : 26 JUNE 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. Choose the **CORRECT** statement about pharmaceuticals.
 - A. A chemical compound intended for used in diagnosis, treatment or prevention of diseases.
 - B. Deals with the formulation of a pure drug substance into a dosage form.
 - C. Drugs are formulated into dosage forms only for technological and stability reasons.
 - D. The means (or the form) by which drug molecules are delivered to sites of action within the body.
 - E. Related to the absorption, distribution, metabolism, and elimination of drugs.
2. Which is the following classified as a solid dosage form?
 - A. Syrup
 - B. Inhalers
 - C. Paste
 - D. Cream
 - E. Capsules
3. Select the **CORRECT** example of capsule dosage form.
 - A. Lozenges solid dosage form
 - B. Effervescent solid dosage form
 - C. Multi-layer solid dosage form
 - D. Soft gelatin solid dosage form
 - E. Dry powder solid dosage form
4. Which of the following is an example of internal semi solid dosage forms?
 - A. Ointment
 - B. Pessaries
 - C. Gels
 - D. Paste
 - E. Creams

5. Choose the **CORRECT** dosage form that is administered by rectal route.
- A. Ointments
 - B. Gels
 - C. Suppositories
 - D. Pastes
 - E. Sprays
6. Select the **CORRECT** statement describing the first pass effect.
- A. Time taken by a drug to respond or to have a therapeutic effect.
 - B. The application of a drug to the site of action after absorption into the blood.
 - C. Some drugs have a narrow therapeutic-toxic index.
 - D. The extent to which a drug is metabolized by the liver before reaching systemic circulation.
 - E. Site-specific applications of drugs.
7. Which statement describe the intra-respiratory route of administration?
- A. Injection or infusion by means of a needle or catheter inserted into the body.
 - B. Application of drug through inhalation into the lungs, typically through the mouth.
 - C. Application of a drug directly to the surface of the skin.
 - D. May cause medicinal taste and local mouth irritation.
 - E. Active ingredient is generally contained in powders or granules which dissolve in GI tract.
8. Choose the **CORRECT** ideal properties of pharmaceutical excipients.
- A. Have interaction with the drug
 - B. Difficult to be obtained
 - C. Unstable during handling
 - D. Pharmacologically inert
 - E. Expensive

9. What is the function of diluents/filler in manufacturing of tablets?
- A. Fill out the size of a tablet, making it practical to produce and convenient for the consumer.
 - B. Hold the ingredients in a tablet together.
 - C. Facilitate dispersion or breakup (disintegration) of tablets into smaller particles.
 - D. Enhance the flow of a granular mixture by reducing inter-particle friction.
 - E. Prevent ingredients from clumping together and from sticking to the tablet punches.
10. Identify the lubricant that is commonly used in tablet manufacturing.
- A. Polyvinylpyrrolidone
 - B. Fumed silica
 - C. Magnesium stearate
 - D. Methyl cellulose
 - E. Lactose
11. Choose the **CORRECT** ideal property of coloring agents in pharmaceutical manufacturing processes.
- A. It should be insoluble in water.
 - B. It should be affected by oxidizing or reducing agents.
 - C. It must be expensive.
 - D. Coloring power should be high even in small quantities.
 - E. It must have taste and odour.
12. What is the example of natural flavouring agent?
- A. Ketones
 - B. Aldehydes
 - C. Alcohol
 - D. Clove oil
 - E. Butterscotch

13. Which antioxidant agent is commonly used for water soluble compounds such as antibiotics?
- A. Butylated Hydroxy Anisole (BHA)
 - B. Tocopherol
 - C. Citric acid
 - D. Ascorbyl palmitate
 - E. Sodium metabisulfite
14. Select the **CORRECT** example of coal tar coloring agent.
- A. Titanium dioxide
 - B. Amaranth
 - C. Caramel
 - D. Iron oxides
 - E. Cochineal
15. Which of the following are requirements for pharmaceutical labelling?
- I. The label should be written in a language understood by most patients.
 - II. The label should be in durable and legible characters.
 - III. The label should include information in metric units of measurement.
 - IV. The label should provide appropriate instructions for use.
- A. I and II
 - B. I and III
 - C. II and III
 - D. I, II, and IV
 - E. I, II, III, and IV

16. Which of the following are required particulars to be included on a pharmaceutical label?
- I. Product name
 - II. Factory owner name
 - III. Name(s) of all active ingredients
 - IV. Quantity or proportion of all active ingredients
- A. I and II
B. I and III
C. II and III
D. I, III, and IV
E. I, II, III, and IV
17. Which of the following statements are **CORRECT** regarding metal containers used in pharmaceutical packaging?
- I. They are impermeable to light, moisture, and gases.
 - II. They are rigid and unbreakable.
 - III. They are light in weight compared to glass containers.
 - IV. They may interact with drug materials.
- A. I and II
B. I and III
C. II and III
D. I, III, and IV
E. I, II, III, and IV
18. Which of the following statements are **CORRECT** regarding ideal closures in pharmaceutical packaging?
- I. Child resistance to opening.
 - II. Prevent access of moisture.
 - III. Closures should be air permeable to allow oxygen entry.
 - IV. Closures should be made of reactive materials to enhance drug stability.
- A. I and II
B. I and III
C. II and III
D. I, III, and IV
E. I, II, III, and IV

19. Which of the following statement is **CORRECT** regarding plastic containers used in pharmaceutical packaging?
- A. Plastic containers may absorb certain chemical substances such as preservatives.
 - B. Plastic containers have excellent heat resistance and high thermal stability.
 - C. Plastic containers are heavy and prone to breakage.
 - D. Plastic containers are impermeable to all gases and moisture.
 - E. Plastic containers cannot be moulded into different shapes.
20. Which of the following are pharmaceutical uses of plastic containers?
- I. Packaging for light-sensitive drugs.
 - II. Prefillable syringes.
 - III. Flexible tubes for semisolid formulations.
 - IV. Sachets, blister packs, and strip packs.
- A. I and II
 - B. I and III
 - C. II and III
 - D. I, II, and III
 - E. II, III, and IV

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

1. State **TWO (2)** importances of dosage form.
2. State **TWO (2)** disadvantages of oral route of administration.
3. List **TWO (2)** examples of parenteral route of administration.
4. State **TWO (2)** roles of opacifiers in the pharmaceutical manufacturing process.
5. State **TWO (2)** disadvantages of flavouring agent in manufacturing of pharmaceutical products.
6. List **TWO (2)** ideal properties of antioxidant agents in pharmaceutical formulation.
7. Explain why airtight containers are important in pharmaceutical packaging.
8. Explain why pharmaceutical containers must be chemically inert.
9. Explain the purpose of using amber-colored containers in pharmaceutical packaging.
10. Explain why plastic containers are not suitable for high-temperature applications.

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) How many grams of dextrose are required to prepare 750 mL of a 0.8% w/v solution?
(5 marks)
- (b) If 250 mL of a 12% w/v solution is diluted to 1000 mL, calculate the final concentration (% w/v) of the solution.
(5 marks)
- (c) A liquid weighs 180 g and occupies a volume of 150 mL. Calculate its density and identify whether it is heavier or lighter than water.
(5 marks)
- (d) A liquid has a specific gravity of 1.25. Calculate the weight of 250 mL of this liquid.
(5 marks)

Question 2

- (a) A master formula for 1000 mL of a solution contains 8 g of a drug. Calculate the amount of drug required to prepare 250 mL of the solution.
(5 marks)
- (b) How much sodium chloride (NaCl) is required to make the following solution isotonic?
Drug X = 0.5% w/v (NaCl equivalent = 0.20)
Purified water q.s. to 100 mL
(5 marks)

- (c) A substance weighs 300 g and has a specific gravity of 1.5. Calculate its volume.
(5 marks)
- (d) A solution has a specific gravity of 1.20. Calculate its specific volume and interpret the result.
(5 marks)

Question 3

- (a) Explain Poison Act 1952 and the board that is responsible for governing the act.
(10 marks)
- (b) After a prescription has been written by a doctor, a pharmacist is tasked to handle the prescription with several steps to ensure there is no or minimal prescription errors before dispensing the medicine to the patient. Explain the procedures for handling prescription by a pharmacist.
(10 marks)

Question 4

- (a) Explain the contents of British Pharmaceutical Codex (BPC).
(10 marks)
- (b) Explain the differences between two different types of prescription.
(10 marks)

END OF EXAMINATION PAPER