

NATIONAL UNIVERSITY OF LESOTHO

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF PHARMACY

BACHELOR OF PHARMACY (HONOURS)

**PHA 3407- BIOPHARMACEUTICAL PRINCIPLES OF DRUG
DELIVERY**

SUPPLEMENTARY EXAMINATION

August 2023

TIME: 3 HOURS

Total: 100 marks

INSTRUCTIONS

- **ANSWER ALL QUESTIONS.**
- **BEGIN EACH QUESTION ON A NEW PAGE**

1. Prior to drug absorption, there are certain physiological barriers that may render orally administered drugs ineffective due to extremely low bioavailability. List and describe five barriers (15). What can you do as an industrial pharmacist in an effort to overcome such barriers (10)? **[25 marks]**

2. List and describe different transport mechanisms across the gastrointestinal membrane. **[25 marks]**

3. Describe the enterohepatic circulation of drugs (5), and discuss why the treatment with drugs that undergo this process may be rendered unsuccessful (15) **[20 marks]**

4. Explain two ways in which the unstirred water layer in the lumen may affect drug absorption following oral drug delivery (6). As an industrial pharmacist designing oral dosage forms of such drugs, what are the possible measures that you could put into place to overcome those effects (4)? **[10 marks]**

5. Discuss some dosage form factors that affect absorption of orally administered drugs **[10 marks]**

6. Explain how different polymorphic forms of the Active Pharmaceutical Ingredient (API) may affect its bioavailability following oral administration. **[10 marks]**