Code No.

Symbol Number: _____ Invigilator's Sign: _____ Superintendent's Sign: _____

Symbol No. in Words: _____

Faculty: Medicine and Allied Health Sciences **Exam Year:2081** **Year/Part: I/II**

Program: Bachelor of Pharmacy **Level: Bachelor** **F.M.: 50**

Subject: Pharmaceutics I (Physical Pharmacy) (BP204) **Time: 3 Hours** **P.M.: 25**

i. Answers should be given by filling the Objective Answer Sheet.
ii. Rough can be done in the main answer sheet
iii. Maximum time of 20 minutes within the total time is given for this group

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Multiple Choice Questions (10*1=10)

1. Which form of a drug has greater solubility?
   a. Anhydrous b. Hydrate c. Crystallized d. Monohydrate

2. Stoke's law cannot be used if Reynold's number is more than:
   a. 0 b. 0.2 c. 1.0 d. 2.0

3. Porosity of a porous powder can be defined as:
   a. Bulk Volume/ Void volume b. Void volume / Bulk volume
   c. True volume/ Bulk Volume d. Bulk volume/ True volume

4. What is the surface tension of liquid at critical temperature?
   a. zero b. one c. negative d. maximum

5. What is the effect of electrolytes on zeta potential?
   a. Decreases b. Increases c. Reverse d. Maintain

6. Jellies generally exhibit:
   a. Plastic flow b. Dilatant flow c. Pseudoplastic flow d. All of the above

7. What is the unit of Kinematic viscosity?
   a. Dynes/cm^2 b. Stoke c. Dynes.sec/cm d. Poise

8. What is the effect of Brownian movement of particles?
   a. It assists sedimentation b. It prevents sedimentation
   c. It increases sedimentation d. It does not affect sedimentation

9. Which one of the following is the use of electrodialysis?
   a. Stabilization b. Purification c. Identification d. Synthesis

10. Solution of proteins and starch in water are examples of?
    a. Lyophilic colloids b. Lyophobic colloids
    c. Hydrophilic colloids d. Hydrophobic colloids

Multiple Choice Questions' Answer Sheet

Code No. _____ Marks Secured: _____

In Words: _____

Examiner's Sign: _____ Date: _____

Scrutinizer's Marks: _____

In Words: _____

Scrutinizer's Sign: _____ Date: _____

Corrected Fill Ⓐ ● Ⓒ Ⓓ

Incorrected Fill ✗Ⓐ Ⓑ ● ✓Ⓓ

1.	Ⓐ	Ⓑ	Ⓒ	Ⓓ		6.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2.	Ⓐ	Ⓑ	Ⓒ	Ⓓ		7.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3.	Ⓐ	Ⓑ	Ⓒ	Ⓓ		8.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4.	Ⓐ	Ⓑ	Ⓒ	Ⓓ		9.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
5.	Ⓐ	Ⓑ	Ⓒ	Ⓓ		10.	Ⓐ	Ⓑ	Ⓒ	Ⓓ

MANMOHAN TECHNICAL UNIVERSITY

Office of the Controller of Examinations

Budiganga- 4, Morang, Koshi Province Nepal

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- ✓ *Group A contains Multiple Choice Questions of 10 marks.*
- ✓ *Candidates are required to give their answers in their own words as far as practicable.*
- ✓ *The figures in the margin indicate Full Marks.*
- ✓ *Assume suitable data if necessary.*

Problem-Based Question (10*1=10)

1. A pharmaceutical company has developed a suspension formulation for a new drug candidate. However, during stability testing, they observed particle aggregation and sedimentation over time, leading to poor shelf-life stability. How would you conduct a thorough investigation into the possible causes of these stability issues related to particle size distribution? Propose a comprehensive strategy to mitigate particle aggregation and sedimentation, ensuring the long-term stability of the suspension formulation.

Long Answer Question: Attempt any four (4*5=20)

1. What do you mean by rate of reaction? Discuss different factors that affect the rate of reaction.
2. The half-life of a first-order reaction **x → products** is 6.932 x 10^4 sec at 500K. What percentage of x would be decomposed on heating at 500K for 100 min. ($e^{0.06} = 1.06$)?
3. Define the HLB system. How can HLB values of different surfactants be estimated?
4. What is an isotonic solution? What are the different methods to adjust tonicity?
5. What are complexes? Classify them with examples.

Short-Answer Question: Attempt any five (5*2=10)

1. Discuss about eutectic mixtures.
2. How does Newtonian flow differ from non-Newtonian flow?
3. What is the specific surface area? What are the different methods to measure it?
4. What are the different instabilities encountered in emulsion formulations?
5. Write a short note on the Coulter Counter method for the determination of particle volume.
6. Mention the significance of optical rotation in pharmaceutics.

THE END