PRACTICE SET FOR SUBJECTIVE QUESTIONS

End Semester (V Semester) Examination, Dec, 2025

Program: B. Pharm

Subject: Industrial Pharmacy - I

Subject Code: BP502T

Course Outcomes	Description
CO1	Detailed knowledge about preformulation principles to evaluate drug properties, address formulation, challenges, and design stable and effective pharmaceutical dosage forms.
CO2	Detailed knowledge about the principles of formulation, manufacturing, and quality control of solid (tablets) and liquid oral dosage forms, including excipient selection, processing techniques, equipment, and evaluation methods as per pharmacopoeia standards.
CO3	Detailed knowledge about the formulation, manufacturing, and quality control of hard and soft gelatin capsules and pellets, including capsule shell production, filling techniques, equipment, and stability considerations.
CO4	Detailed knowledge about the principles of formulation, manufacturing, aseptic processing, and quality control of parenteral and ophthalmic products, including container selection, isotonicity, and stability requirements.
CO5	Detailed knowledge about the formulation, manufacturing, and evaluation of cosmetic products, pharmaceutical aerosols, and packaging materials, including regulatory requirements, container selection, and stability considerations.

Unit - I

S No.	Questions	CO	Bloom's Taxonomy Level
Section II			**Questions for 5 marks**
1	A drug is unstable in aqueous solution due to hydrolysis. Suggest a formulation approach for a stable liquid dosage form.	CO1	Remember
2	List any four chemical degradation pathways that a drug may undergo during storage.	CO1	Understand
3	Compare the physicochemical differences between crystalline and amorphous forms of a drug and analyze their impact on drug stability.	CO1	Understand
4	Define preformulation studies and state their primary goals in pharmaceutical development.	CO1	Remember
5	Explain the significance of solubility profile (pKa, pH, and partition coefficient) in preformulation studies.	CO1	Understand
6	A poorly soluble drug is classified as BCs class – II. Suggest a	CO1	Understand

	suitable formulation strategy to enhance its bioavailability.		
7	Explain the concept of preformulation and discuss its main goals and objectives in pharmaceutical product development.	CO1	Understand
Section III			**Questions for 10 marks**
8	Analyze how polymorphism can influence drug formulation and stability. Support your answer with pharmaceutical examples. Define preformulation studies. List and describe any four physicochemical properties commonly evaluated during preformulation.	CO1	Analyze
9	Design a comprehensive preformulation study plan for a new drug candidate, including evaluation of flow properties, particle size analysis, and compatibility testing with excipients.	CO1	Create
10	Critically evaluate the impact of hydrolysis, oxidation, reduction, and racemisation on the stability and efficacy of pharmaceutical products, and suggest strategies to minimize such degradation.	CO1	Evaluate
Unit - II			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**
11	Compare film coating and sugar coating based on materials used, process, and advantages.	CO2	Remember
12	Suggest a suitable granulation technique for a moisture-sensitive drug and explain why it is appropriate.	CO2	Understand
13	Explain the role of disintegrants and lubricants in tablet formulation with suitable examples.	CO2	Understand
14	Explain the basis of classification of tablets with suitable examples for each category.	CO2	Understand
15	Explain the role of various ingredients and the importance of each step in the manufacturing of syrups.	CO2	Understand
16	List the common defects that occur during the coating of tablets.	CO2	Remember
Section III			**Questions for 10 marks**
17	Analyze the difference between film coating, sugar coating, and enteric coating of tablets in terms of: Objectives, Materials used, Equipment required and Defects and troubleshooting.	CO2	Analyze
18	Justify and discuss the significance of in-process and finished product quality control tests in ensuring the consistency, safety, and efficacy of tablets.	CO2	Evaluate
19	Design a comprehensive quality evaluation for a new liquid oral formulation in accordance with pharmacopoeial requirements	CO2	Create
20	Design a complete formulation and manufacturing process for a sustained-release tablet, including choice of drug, excipients, and evaluation parameters as per pharmacopoeial requirements.	CO2	Create
Unit - III			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**

21	Explain the importance of formulation requirements in pellet preparation.	CO3	Understand
22	Describe the importance of base adsorption and minim/gram factors.	CO3	Remember
23	Explain the process involved in filling hard gelatin capsules.	CO3	Remember
24	Discuss the common manufacturing defects encountered in capsule production, analyzing their possible causes and methods for prevention.	CO3	Understand
25	Explain the step-by-step process involved in the production of hard gelatin capsule shells.	CO3	Understand
26	Explain the various methods used for filling hard gelatin capsules, including manual and machine-based techniques.	CO3	Understand
27	Explain the purpose of each quality control test such as disintegration, dissolution, weight variation, and content uniformity for capsules.	CO3	Understand
28	List the different methods used for pelletization in pharmaceutical manufacturing.	CO3	Remember
Section III			**Questions for 10 marks**
29	Design a flowchart for a continuous process to manufacturing gelatin used in capsule and describe the types of gelatin and suitable example.	CO3	Create
30	Analyze the critical process parameters that affect the quality of soft gelatin capsules during manufacturing.	CO3	Analyze
31	Design a complete quality control protocol integrating both in-process and final product tests for capsule formulations, ensuring compliance with pharmacopoeial and GMP standards.	CO3	Create
32	Analyze how process parameters in extrusion–spheronization, drug layering, and fluid bed processing influence the size, shape, and strength of the resulting pellets.	CO3	Analyze
Unit - IV			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**
33	List the essential components used in the formulation of ophthalmic eye drops and write their functions.	CO4	Understand
34	List the various evaluation tests performed on ophthalmic preparations and state the purpose of each.	CO4	Remember
35	List the steps involved in the filling and sealing of ampoules during the manufacture of parenteral preparations.	CO4	Understand
36	Explain the essential requirements for formulating parenteral products and their importance in ensuring sterility and stability.	CO4	Understand
37	List the main steps involved in the production of parenteral products.	CO4	Remember
38	Explain the process and key considerations involved in the formulation of injections.	CO4	Understand
39	Define aseptic processing and list the basic facilities required for aseptic production in pharmaceutical manufacturing.	CO4	Remember
40	List the types of hair dyes and mention the main ingredients used in the preparation of hair dyes and sunscreens.	CO4	Understand

Section III			**Questions for 10 marks**
41	Propose a complete formulation design for a multi-dose parenteral product, including selection of additives and their concentrations.	CO4	Create
42	Analyze the differences in formulation, manufacturing process, and quality control tests among eye drops, and eye lotions.	CO4	Analyze
43	Apply your knowledge to design a suitable formulation for: (a) A water-soluble drug as an injection (b) A heat-sensitive drug as a sterile powder for reconstitution. Include suitable vehicles, additives, and sterilization methods.	CO4	Apply
44	Critically evaluate the common defects encountered during ampoule filling and sealing (e.g., cracks, incomplete seals, contamination). Suggest corrective and preventive measures to ensure product quality and sterility.	CO4	Evaluate
Unit - V			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**
45	List the various quality control tests performed on pharmaceutical any cosmetic products.	CO5	Remember
46	Discuss the factors influencing the choice of containers for pharmaceutical formulations, highlighting how these factors relate to product safety and compatibility.	CO5	Remember
47	Discuss the different types of pharmaceutical aerosol systems and explain how their composition affects product performance and delivery.	CO5	Understand
48	Discuss how the formulation and preparation of cold cream differ from vanishing cream in terms of emulsion type, ingredients, and purpose.	CO5	Understand
49	Define pharmaceutical aerosols and list the different types of aerosol systems used in drug delivery.	CO5	Remember
50	Define packaging materials and list the different types of packaging materials commonly used in pharmaceuticals along with examples.	CO5	Remember
Section III			**Questions for 10 marks**
51	Analyze the different types of aerosol systems (solution, suspension, and emulsion aerosols). Discuss how the type of system influences the choice of propellant, container, and valve design.	CO5	Analyze
52	Analyze the formulation differences between lipsticks and shampoos in terms of ingredients, preparation technique, evaluation tests, and stability considerations.	CO5	Analyze
53	Design a comprehensive quality control testing protocol for a newly developed metered-dose aerosol inhaler, specifying key evaluation parameters.	CO5	Create

Summary Sheet

CO WISE

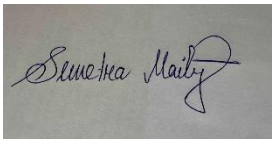
CO	Q. No	Marks
CO1	1,2,3, 4,5, 6, 7,8,9,10	65
CO2	11,12,13,14,15,16,17,18,19,20	70
CO3	21,22,23,24,25,26,27,28,29,30,31,32	80
CO4	33,34,35,36,37,38,39,40,41,42,43,44	80
CO5	45,46,47,48,49,50,51,52,53	60
Total		**355**

Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3, 4,5, 6, 7,8,9,10	65
Unit 2	11,12,13,14,15,16,17,18,19,20	70
Unit 3	21,22,23,24,25,26,27,28,29,30,31,32	80
Unit 4	33,34,35,36,37,38,39,40,41,42,43,44	80
Unit 5	45,46,47,48,49,50,51,52,53	60
Total		**355**

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1,2,3,4,5,6,7,11,12,13,14,15,16,21,22,23,24,25,26,27,28, 33,34,35,36,37,38,39,40,45,46,47,48,49,50	175
HOT	8,9,10,17,18,19,20,29,30,31,32,41,42,43,44, 51,52,53	180
Total		**355**



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Disclaimer: -This is a Practice Set. The Question in End term examination will differ from the Practice Set. This Practice Set is meant for practice only.