

(Affiliated to the Tamil Nadu Dr M.G.R Medical University, Chennai)

B. Sc. CARDIOPULMONARY PERFUSION CARE TECHNOLOGY

1411 – PHARMACOLOGY

II YEAR

UNIT II – SYSTEMIC AND ORAL HYPOGLYCEMIC DRUGS

I. ELABORATE ON

10 MARKS

REFERENCE – THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY QUESTION PAPER

S.no	Questions	Reference	Bloom's Taxonomy
1	Classify Oral Hypoglycemic Agents (OHAs). Discuss the detailed mechanism of action, non-pancreatic effects, therapeutic uses, and adverse effects of Metformin (a Biguanide).	AUGUST 2026	Analyze
2	Discuss the physiological mechanism of insulin secretion and its action on target tissues. Classify and describe the different types of therapeutic insulin based on their duration of action and their role in a basal-bolus regimen.	APRIL 2025	Analyze
3	Compare and contrast the pharmacology, efficacy, and safety profile of Sulfonylureas and Meglitinides as insulin secretagogues. Discuss the clinical implications of the risk of hypoglycemia associated with each.	FEBRUARY 2024	Evaluate
4	Elaborate on the mechanism of action, advantages, and limitations of the newer anti-diabetic drugs: SGLT2 inhibitors (e.g., Empagliflozin) and GLP-1 Agonists (e.g., Liraglutide).	AUGUST 2024	Analyze
5	Describe the steps in the pharmacological management of a patient with newly diagnosed Type 2 Diabetes Mellitus (T2DM) . Detail the rationale for using combination therapy versus monotherapy.	APRIL 2023	Apply

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S.no	Questions	Reference	Bloom's Taxonomy
6	Discuss the mechanism of action, pharmacokinetics, and clinical indications of Thiazolidinediones (Glitazones) . Detail their specific adverse effect profile, including their cardiovascular risks/benefits.	FEBRUARY 2022	Analyze
7	Describe the signs, symptoms, and the emergency management of Hypoglycemic Coma in a patient on insulin therapy. Explain the crucial role of IV Glucose and Glucagon.	AUGUST 2023	Apply
8	Classify and discuss the mechanism of action, therapeutic uses, and contraindications of DPP-4 Inhibitors (Gliptins) . Compare their mechanism with GLP-1 Agonists.	APRIL 2022	Analyze
9	Discuss the long-term complications of Diabetes Mellitus (e.g., Diabetic Nephropathy). Detail the specific non-hypoglycemic drugs used to prevent or manage this complication.	FEBRUARY 2021	Analyze
10	Elaborate on the different Insulin Regimens (e.g., conventional, intensive, basal-bolus). Justify the selection of a specific regimen for a Type 1 Diabetic patient undergoing cardiac surgery.	AUGUST 2020	Apply

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S.no	Questions	Reference	Bloom's Taxonomy
1	Write notes on the mechanism of action and major adverse effects of Metformin .	APRIL 2024	Understand
2	Discuss the clinical utility and mechanism of action of Pioglitazone .	AUGUST 2021	Apply
3	Write notes on the mechanism and cardiovascular benefits of SGLT2 inhibitors .	FEBRUARY 2020	Apply
4	Differentiate between Short-acting and Long-acting insulin preparations (e.g., Lispro vs. Glargine).	APRIL 2019	Analyze
5	Discuss the primary mechanism of action and side effects of Gliclazide .	AUGUST 2019	Understand
6	Write notes on Lactic Acidosis associated with Biguanides.	FEBRUARY 2018	Understand
7	Explain the mechanism and clinical use of Sitagliptin .	APRIL 2017	Apply
8	Write notes on the pharmacology of Alpha-glucosidase Inhibitors (e.g., Acarbose).	AUGUST 2017	Understand
9	Discuss the physiological action of GLP-1 and the therapeutic use of its synthetic analogues.	FEBRUARY 2016	Understand
10	Briefly explain Insulin Resistance and the classes of drugs designed to overcome it.	APRIL 2016	Understand

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S.no	Questions	Reference	Bloom's Taxonomy
1	Name three drugs belonging to the Sulfonylurea class.	AUGUST 2026	Remember
2	Give two non-pancreatic actions of Metformin .	APRIL 2025	Remember
3	What is the main side effect of Alpha-glucosidase inhibitors ?	FEBRUARY 2024	Remember
4	State the mechanism of action of Repaglinide .	AUGUST 2024	Understand
5	Name two drugs belonging to the DPP-4 Inhibitors class.	APRIL 2023	Remember
6	What is the advantage of Insulin Glargine ?	FEBRUARY 2023	Understand
7	Name a drug class that causes ' euglycemic DKA ' as a side effect.	AUGUST 2022	Remember
8	Define Systemic Hypoglycemic Drugs .	APRIL 2022	Remember
9	What is the meaning of a ' Basal-Bolus ' insulin regimen?	FEBRUARY 2021	Understand
10	Give two advantages of Oral Hypoglycemic Agents over insulin.	AUGUST 2021	Understand
11	State one major cardiovascular benefit of	APRIL 2020	Remember

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S.no	Questions	Reference	Bloom's Taxonomy
	Empagliflozin.		
12	What is the mechanism of action of Sitagliptin ?	FEBRUARY 2020	Understand
13	What is the major toxicity/risk associated with Thiazolidinediones (besides hypoglycemia)?	AUGUST 2019	Remember
14	Name an insulin secretagogue other than Sulfonylureas.	APRIL 2018	Remember
15	What is the primary use of Pramlintide ?	FEBRUARY 2017	Remember