Unit-4

S.No	Questions	BT	CO	PO
	Part -A (Short Answer Questions)			
1.	Define Doubly Fed Induction Generator (DFIG).	L1	CO4	1
2.	What is the principle of operation of a DFIG?	L1	CO4	1
3.	What is a squirrel cage induction generator (SCIG)?	L1	CO4	2
4.	Mention two advantages of DFIG in wind energy systems.	L1	CO4	3
5.	What are the main components of a DFIG-based wind turbine?	L1	CO4	1
6.	Define slip in an induction generator.	L2	CO4	1
7.	What is the role of rotor-side converter in a DFIG?	L2	CO4	1
8.	What is the purpose of power converter control in WECS?	L1	CO4	1
9.	Mention different control methods used in wind turbine converters.	L1	CO4	1
10.	What is pitch angle control in wind turbines?	L2	CO4	1

S.No	Questions	BT	CO	PO
	Part -B (Long Answer Questions)			
1.	Explain the construction and working principle of a Doubly Fed Induction Generator (DFIG) used in wind energy systems.	L3	CO4	2
2.	Discuss the advantages and disadvantages of DFIG-based wind turbines.	L2	CO4	2
3.	Draw and explain the block diagram of a DFIG wind energy conversion system.	L2	CO4	2
4.	Explain the operation of rotor-side converter and grid-side converter in DFIG systems.	L2	CO4	

5.	Describe the construction and working of squirrel cage induction generator (SCIG) based wind turbines.	L2	CO4	2
6.	Compare DFIG and SCIG wind turbine systems based on performance, efficiency, and cost.	L2	CO4	2
7.	Describe the speed control techniques used in wind turbine generators.	L2	CO4	2
8.	Explain the protection methods used in DFIG wind turbine systems	L3	CO4	2
9.	Explain active and reactive power control in DFIG wind turbines.	L2	CO4	1
10.	Explain the need for reactive power compensation in squirrel cage induction generator based WECS.	L2	CO4	3