



Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Smart & Micro Grid
Programme: B.Tech Electrical Engineering
Course Code: EPEG 4021P

Semester: VIII
Max Marks:100
Duration : 3 Hrs.

S. No.		Marks	CO
	Section A		
	Short Answer Question. Each Question carries 4 marks		
Q.1	What is slack us and what are its properties	4	CO1
Q.2	List various faults in electrical power system.	4	CO1
Q.3	Explain role of 'Isolation circuit' in smart meters.	4	CO2
Q.4	Explain Peak load and Average load.	4	CO2
Q.5	What is PSK and what are its advantages?	4	CO3
	Section B		
	Each Question carries 10 marks		
Q.6	With neat Single Line Diagram, explain 66kV/11kV sub-station automation system with the major equipment.	10	CO4
Q.7	With neat Diagram explain the HAN, NAN, LAN, WAN used in AMI	10	CO2
Q.8	Explain the essential need of Smart Grid Technology for Electrical Distribution Network.	10	CO1
Q.9	Explain Demand Side Integration (ToD metering) to shave of the peak demand. What are other techniques, which can assist to shave peak demand?	5 5	CO4
	Section 'C'		
	Long Answer Question (20 Marks)		
Q 10	With a neat diagram and step-by-step process describe the various planning and techniques involved in implementation of Micro Grid in remotely located village in state of Uttarakhand. The available energy resources are Solar, Wind, Small hydro and Bio- mass. As a Micro Grid expert, how will you execute the plan and ensure long-term operation of plant. (Though calculations are not required associated strategy need to be explained)	20	CO5
Q.11	A) Explain the essential need of cyber security for Smart Grid? B) Explain substitution Cyber encryption technique. Also, explain its advantages and disadvantages.	10 10	CO3