

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
Regular and Supplementary Summer 2024

Course: B. Tech. Branch : Electrical Engineering and Allied Semester : VI

Subject Code & Name: BTEEPE604B Smart Grid Technology

Max Marks: 60

Date: 21/06/2024

Duration: 3 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	(Level/CO)	Marks
Q.1 Solve Any Two of the following.		
<input checked="" type="checkbox"/> A) Write a key challenges and policies related to smart grids in India.	K1/CO1	6
<input type="checkbox"/> B) Describe the Intelligent Electronic Devices (IED) with their application.	K2/CO1	6
<input type="checkbox"/> C) Illustrate the Pumped Hydro used for renewable energy smart storage.	K3/CO1	6
Q.2 Solve Any Two of the following.		
<input type="checkbox"/> A) Describe Architecture of Smart Grid with suitable layout diagram.	K2/CO2	6
<input checked="" type="checkbox"/> B) Explain the following terms: A) Transmission Automation in a Smart Grid B) Distribution Automation in a Smart Grid	K2/CO2	6
<input type="checkbox"/> C) Explain how artificial intelligence techniques are being utilized in smart grid development.	K2/CO2	6
Q.3 Solve Any Two of the following.		
<input type="checkbox"/> A) Discuss the Environmental impact and Climate Change due to electrical power generation.	K2/CO3	6
<input checked="" type="checkbox"/> B) Explain in the details Electric Vehicles and plug-in hybrids contribution in micro grids.	K2/CO3	6
<input type="checkbox"/> C) Illustrate working of Microgrid with its benefits and drawbacks.	K3/CO3	6
Q.4 Solve Any Two of the following.		
<input type="checkbox"/> A) Explain the role of IP-based systems and Power Line Communications (PLC) in smart grid communication networks.	K2/CO4	6
<input checked="" type="checkbox"/> B) Explain the role of Advanced Metering Infrastructure (AMI) in communication technology.	K2/CO4	6
<input type="checkbox"/> C) Illustrate working of Phasor Measurement Units (PMUs) with suitable diagram.	K3/CO4	6
Q.5 Solve Any Two of the following.		
<input checked="" type="checkbox"/> A) Explain the Load Frequency Control (LFC) and Voltage Control in Micro Grid System.	K2/CO5	6
<input checked="" type="checkbox"/> B) Discuss various Cyber Security Challenges in Smart Grid.	K2/CO5	6
<input type="checkbox"/> C) Illustrate how the test beds are used for different case studies of smart grids.	K3/CO5	6

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination - Summer 2023

Course: T.Y.B.Tech. Branch: Electrical Engineering & ALLIED Semester: VI

Subject Code & Name: BTEEPE604B/BTEIPE604C Smart Grid Technology

Max Marks: 60

Date: 19-07-2023

Duration: 3 Hr.

Instructions to the Students:

1. All the questions are compulsory
2. The level of questions/expected answer as per OBE or the Course Outcome(CO) on which the question is based is mentioned in (i) or (ii) of the question
3. Illustrate your answer with neat sketch, diagram etc. wherever necessary
4. Assume suitable data wherever necessary and mention it clearly.

	CO	Marks
Q. 1 Solve any two of the following.		12
✓ A) Write a short note on smart meter.	CO1	06
✓ B) Explain AMR in detail.	CO1	06
C) Explain Indian Smart Grid Challenges.	CO1	06
Q.2 Solve any two of the following.		12
✓ A) State and explain components of smart grid.	CO1	06
B) Explain Environmental impact on electric vehicle.	CO1	06
✓ C) Write a short note on transmission automation and distribution automation.	CO1	06
Q. 3 Solve any two of the following.		12
A) Explain operating modes of micro grid with neat diagrams.	CO2	06
✓ B) Draw and explain block diagram of EV.	CO2	06
✓ C) Differentiate between series and parallel hybrid vehicles.	CO2	06
Q.4 Solve any two of the following.		12
✓ A) Explain Synchro Phasor Measurement Units (PMUs) in detail.	CO3	06
✓ B) Write a short note on zigbee.	CO3	06
✓ C) Explain two-way Digital Communications Paradigm.	CO3	06
Q. 5 Solve any two of the following.		12
A) Explain Voltage Control and reactive power control in Micro Grid System.	CO3	06
B) Explain Cyber Security Challenges in Smart Grid	CO3	06
C) Explain Load Frequency Control (LFC) in Micro Grid System.	CO3	06
*** End ***		