



Time:		Max.Marks: 100				
S.NO	Answer All Questions	Choice	Options	Marks	CO	BTL
1.	Explain the infrastructure of Future power grid.	choice Q-2		10Marks	CO1	2
2.	a) List out the applications of Smart Grid. b) Smart Grid is worth investing or not. Justify your answer.			10Marks	CO1	2
3.	a) Discuss in detail about Self-Healing system and mention its requirements. b) Outline the enabling technologies required for development and implementation of Smart Grid.	choice Q-4		15Marks	CO1	2
4.	Illustrate the following about Smart Grid system. a. Pillars of smart grid b. Five Key aspects c. Features d. Challenges faced by electricity system			15Marks	CO1	2
5.	Specify the Functions, advantages and application features of sensors used Smart substations.	choice Q-6		10Marks	CO2	2
6.	a) Write a short note on SCADA systems. b) List out the primary functions of SCADA master station.			10Marks	CO2	2
7.	a) Outline the paradigm Shift in Substation Design. b) List out the primary functions of EMS, DMS and DA master system.	choice Q-8		15Marks	CO2	2
8.	Explain the role of Smart substations in the smart grid architecture with a neat diagram.			15Marks	CO2	2
9.	a) List out the complexities existing in distribution systems. b) Discuss about Load flow studies in power system.	choice Q-10		10Marks	CO3	4
10.	Explain Three-phase models for unbalanced three-phase distribution systems with necessary equations.			10Marks	CO3	4
11.	<p>a) Explain forward/backward method for obtaining load flow solution. b) For the network shown in below Fig. show two iterations of the forward/backward method</p> <p>$Z_{23} = 0.05 + j0.07 \text{ pu}$ $Z_{34} = 0.05 + j0.07 \text{ pu}$ All quantities are in per unit on 20 kV, 100 MVA base</p>	choice Q-12		15Marks	CO3	4
12.	Analyze about LSE and WLSE method used in state estimation.			15Marks	CO3	4
13.	Discuss about Voltage Fluctuations on the Distribution System.	choice Q-14		10Marks	CO4	2
14.	Discuss about Power Transformers & Substation Bus Regulation Volt/VAr Control Equipment used inside the Substation.			10Marks	CO4	2
15.	Explain in detail about the following FDIR Equipments used in distribution systems. a. Substation Circuit Breaker b. Remotely Operable Load-Break Switch c) Automatic Recloser d) Sensors	choice Q-16		15Marks	CO4	2
16.	Explain Drivers, Objectives, and Benefits of Fault Detection, Isolation, and Service Restoration (FDIR) in distribution systems.			15Marks	CO4	2

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