CLASS: BTECH   SEMESTER : VII
BRANCH: EEE   SESSION : MO/2024

SUBJECT: EE605R1 MICROGRID OPERATION AND CONTROL

TIME: 02 Hours   FULL MARKS: 25

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

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Q.1(a)	Draw the electrical circuit representation of AC, DC and AC/DC hybrid microgrid.	[2]		1
Q.1(b)	Enumerate different technologies for distributed generation and mention their typical available size range.	[3]		1,2
Q.2(a)	What are the primary functions of micro-source controller and central controller in a Microgrid?	[2]		1,2
Q.2(b)	Draw the microgrid layout as proposed by CERTS and explain its working.	[3]		2
Q.3(a)	What are the various technical advantages and challenges of microgrid development?	[2]		1
Q.3(b)	Draw the electrical model of a PV cell and derive its governing equations. How does Isc and Voc depends on ip? Justify.	[3]		3
Q.4(a)	Explain the Perturb and Observe method of MPPT Tracking with flowchart.	[2]		2
Q.4(b)	Discuss the implementation of Boost converter for realizing MPPT using load line concept. Use proper circuit diagrams and related equations.	[3]		3
Q.5(a)	Discuss the average modelling of a Grid connected PV based active generator with ESS. Draw complete model and explain the governing equations of each subsystems.	[5]		3.4

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