U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Electrical & Electronics Engineering **Duration: 3 hrs.**
Course Code: 19EE5PE2ES **Max Marks: 100**
Course: ELECTRICAL ENERGY SYSTEMS **Date: 30.09.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

UNIT - I

1	a)	Describe briefly the Conventional and Non-Conventional Energy Sources.	**07**
	b)	Describe with a neat sketch, the Principle of Fluidization and Fluidized bed combustion.	**07**
	c)	Explain in detail about world energy futures.	**06**

UNIT - II

2	a)	With a neat schematic diagram, explain the working principle of a thermal power Plant	**10**
	b)	Explain the following terms related to hydroelectric power generation: (i) Spillway (ii) Surge Tank (iii) Penstock and Tunnel.	**06**
	c)	Explain the main factors for selection of site for nuclear power station.	**04**

OR

3	a)	Describe in detail all the classifications of hydroelectric Power Plant.	**10**
	b)	With a neat Schematic diagram**,** explain the operation of nuclear power plant.	**10**

UNIT - III

4	a)	starting from the equivalent circuit of a Solar cell and with a typical I-V characteristics, derive expression for conversion efficiency and maximum power output.	**10**
	b)	With a neat schematic diagram, explain the concept of bypass diode and blocking diode configuration.	**06**
	c)	Explain the concept of partial shading when 8 modules are shaded.	**04**

OR

5	a)	Describe with a neat block diagram, a basic Photovoltaic system for power generation.	**10**
	b)	Explain in detail classifications of the solar cells and also list the applications of Solar Photovoltaic System.	**10**

UNIT - IV

6	a)	Describe with a neat block diagram, a basic Principle of wind energy conversion system (WECS) & its components.	**10**
	b)	Define Smart Grid and mention any four objectives of Smart Grid.	**06**
	c)	List out the advantages and disadvantages of WECS.	**04**

UNIT - V

7	a)	Explain the following terms: (i) Load duration Curve (ii) Maximum Demand (iii) Demand factor (iv) Plant capacity factor (v)Plant Use factor.	**10**
	b)	Define Tariff. Explain in detail any 3 types of tariffs with its advantages & disadvantages.	**10**

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