

- (b) What are the DG options available ?  
Discuss in brief with diagram. 7½

8. Write short notes on the following :

- (a) Compare PHEVs and HEVs with  
diagram. 7½
- (b) Differentiate Threats Vs Vulnerabilities.  
7½

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Roll No. ....

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**M. Tech. EXAMINATION, May 2018**

(Third Semester)

(Re-appear Only)

EE(PS)

MPS605B

SMART GRID

*Time : 3 Hours]*

*[Maximum Marks : 75*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

### Unit I

1. (a) Explain the concept of smart grid control. What are smart grid impacts ?  
7½
- (b) Justify the global movement towards evolving a smart grid and its application.  
7½
2. (a) How different techniques of communication play important role in operation of smart grid ?  
7½
- (b) What is a PLC ? Its application and role of Ladder logic diagram in Industries.  
7½

### Unit II

3. (a) Discuss in detail the factors affecting power system security.  
7½
- (b) Explain cyber security strategies and impact of threats on smart grid.  
7½

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4. (a) Explain the concept of DER cyber security.  
7½
- (b) Explain mode of false data injection in smart grid and discuss few techniques for rectification.  
7½

### Unit III

5. (a) Explain the solution procedure for the state estimation using the weighted least square method with a suitable example.  
7½
- (b) What do you mean by energy audit ? Also explain types of energy audit.  
7½
6. What do you understand by energy management system ? Describe its various hierarchical levels. Also describe the generating and transmission planning.  
15

### Unit IV

7. (a) How can the effectiveness of a DSM program be tested ?  
7½

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P.T.O.