

Pre. Ph.D. Course Work (2017 Course) : (Electrical Engg) :
SUMMER - 2019

SUBJECT: PAPER – II: RECENT ADVANCES IN ELECTRICAL ENGINEERING

Day : Wednesday
Date : 24/04/2019

Time: 10.00 AM TO 1.00 PM
Max. Marks: 100

S-2019-5363

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

Q.1 Explain in detail basic load modeling concepts and its importance. **[10]**

OR

Compare static load representation with dynamic load representation.

Q.2 Describe stator reference frame model of three phase induction machine. **[10]**

OR

Describe rotor reference frame model of three phase induction machine.

Q.3 Explain in detail the principles of vector control of induction motor. **[10]**

OR

Explain the following with reference to vector control of induction motor:
estimation of flux, flux weakening operation.

Q.4 State the basic types of FACTS controllers. Describe static shunt compensator. **[10]**

OR

Describe SVC and STATCOM operation in detail.

Q.5 Explain the importance of series and shunt-series compensators. State their applications in industry. **[10]**

OR

Describe static voltage and phase angle regulator, TVCR and TCPAR operation and control.

Q.6 Explain in detail determining tuning constants for good control performance with reference to PID Control. **[10]**

OR

Describe Ziegler-Nichols method in detail with reference to PID Control.

Q.7 Explain in detail the concept of Fuzzy logic with necessary diagrams. Give practical applications. **[10]**

OR

Explain in detail Artificial neural network. Explain applications in industry.

P.T.O.

Q.8 Explain with reference to AMC, PIC peripherals following: Harvard architecture and pipelining, program memory considerations. **[10]**

OR

Explain with reference to AMC, PIC peripherals following: CPU registers PIC peripherals, I/O ports.

Q.9 Explain the following in detail about ARM processors: ARM design philosophy, ARM fundamentals instruction set, thumb instruction set. **[10]**

OR

Explain the following applications with reference to AMC, ARM and AVR processors:

i) lamp dimmer ii) 4 × 4 matrix keyboard and LCD interfacing

Q.10 Explain in detail power quality conditioners for smart grid. **[10]**

OR

Write detailed note on information and communication technology for smart grid.

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