

SUBJECT CODE NO:- P-255
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (EEP/EE/EEE) Examination May/June 2017
Power System Operation & Control
(Revised)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Q. no. 1 Q. no. 6 are compulsory.
 - ii. Solve any five sub questions from Q. No. 1 and Q. No.6.
 - iii. Solve any two questions from remaining questions in each section.
 - iv. Assume suitable date wherever necessary.

Section A

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|-----|--|----------------|
| Q.1 | Solve any five questions. | 10 |
| | <ol style="list-style-type: none">a) Write two effects of excitation system.b) Draw the transient model of synchronous machine.c) Write the function of PSS.d) What do you by linearization in detail signal stability?e) Define d, q, o axis components.f) Write the per unit stator and rotor voltage equation.g) What is a exciter? | |
| Q.2 | <ol style="list-style-type: none">a) Explain AC excitation system in details.b) Write the functions of AC and DC regulators in excitation system. | 08
07 |
| Q.3 | <ol style="list-style-type: none">a) Explain with block diagram the governor with transient droop compensation.b) Derive the expression for swing equation. | 08
07 |
| Q.4 | <ol style="list-style-type: none">a) Explain the classical model of single machine infinite bus system.b) Explain classical transfer function of hydraulic turbine with its special characteristics. | 08
07 |
| Q.5 | Write short note on | |
| | <ol style="list-style-type: none">i. AVRii. Armature and field structure of synchronous machine.iii. State space representation. | 05
05
05 |

Section B

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| Q.6 | Solve any five | 10 |
| | <ol style="list-style-type: none">a) What is economic load dispatch?b) What is AGC?c) What is SCADA?d) What is contingency analysis?e) What is energy management system?f) What is static var system?g) What is the function of shunt capacitor? | |

2017

- Q.7 a) Explain production and absorption of reactive power in power system equipment. 08
 b) Explain any three methods of voltages control with schematic diagram in detail. 07
- Q.8 a) Explain long term hydrothermal scheduling problem formulation. 08
 b) Explain power system security assessment in detail. 07
- Q.9 a) What is SCADA? Explain the role of SCADA system in energy management system. 08
 b) Explain in detail energy management system and its implementation steps. 07
- Q.10 Write short note on
- a) Maintenance scheduling 05
 b) Synchronous condenser 05
 c) Modelling of ULTC. Transformer. 05