**PVP 14**

Code: EE7T3

**IV B.Tech - I Semester – Regular Examinations – October - 2017**

# SWITCHGEAR PROTECTION & CARRIER COMMUNICATION

## (ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11 x 2 = 22

1.

a) What is meant by recovery voltage?
b) What are the advantages of oil as arc quenching medium?
c) What are the types of air circuit breakers?
d) List the classification of phase comparators.
e) How are numerical relays different from conventional electromagnetic relays?
f) What are the features of directional relays?
g) What is the principle of operation of under-voltage relay?
h) What are the advantages of differential relays?
i) What are the merits of Buchholtz relay?
j) What are the disadvantages of reactance grounding?
k) What is the principle of operation of lightening arrestor?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Discuss the operating principle of SF6 circuit breaker. What are its advantages over other types of circuit breakers? 8 M

   b) Explain the principle of resistance switching and define RRRV. 8 M

3. a) Explain the principle of operation of attracted armature type electromagnetic relay with neat sketch. State its limitations. 8 M

   b) What are the different inverse time characteristics of overcurrent relays? How are these achieved in practice for an electromagnetic relay? 8 M

4. a) What is Universal Relay torque equation? Explain the principle of operation of impedance relays using Universal relay torque equation. 8 M

   b) Explain the principle of percentage biased differential relay with necessary diagrams and discuss its applications. 8 M

5. a) What type of protective scheme is employed for the protection of an alternator against ground faults? 8 M

b) Explain briefly about the three zone distance protection of long transmission lines. 8 M

6. a) What is neutral grounding? Explain any two methods of neutral grounding along with their merits and demerits. 8 M

b) What is the necessity of protecting the electrical equipment against travelling waves? 8 M