

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2170908

Date:21/11/2016

Subject Name:Switch Gear and Protection

Time:10.30 AM to 1.00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Discuss various zones of protection for a modern power system. Explain primary and back-up protection. **07**
- (b)** Explain construction and working principle of induction cup type electromagnetic relays. Derive an expression for torque produced by induction type relay. **07**
- Q.2 (a)** Describe plug setting multiplier and time multiplier setting with suitable example. **07**
- (b)** Draw the phasor diagram for 30° and 60° connection of directional over current relay. Explain Limitations of O.C. Relays. **07**
- OR**
- (b)** Explain construction, working and operating characteristics of percentage differential relay. **07**
- Q.3 (a)** Explain restricted earth fault protection of three phase transformer. **07**
- (b)** Explain under reach and over reach of distance relay. **07**
- OR**
- Q.3 (a)** Show the characteristics of following distance relays on R-X diagram. (i) Reactance relay (ii) Mho relay (iii) Impedance relay **07**
- (b)** Draw and explain schematic diagram for coupling and trapping the carrier in to the desired line section. **07**
- Q.4 (a)** Draw and explain protection of generator against unbalanced loading. **07**
- (b)** Enlist and explain abnormal conditions take place in three phase induction motor. **07**
- OR**
- Q.4 (a)** Draw and explain block diagram of microprocessor based distance relay. **07**
- (b)** With neat diagram explain “The restriking and recovery Voltage” Discuss factors affecting it. **07**
- Q.5 (a)** Write a short note on oil circuit breaker with neat sketch. **07**
- (b)** Write merits of SF6 gas as insulating and arc quenching medium and property of SF6 gas. **07**
- OR**
- Q.5 (a)** With neat diagram explain HVDC circuit breaker. **07**
- (b)** Write and explain difference between measurement CT & protective CT. **07**
