

GANPAT UNIVERSITY

M. TECH SEM- II (Electrical Engineering), Regular Exam- APRIL-JUNE-2015

3EE203- Modern Power System Protection

Time- 3 hrs

Total Marks-60

Instructions: (1) This question paper has two sections. Attempt each section in separate answer book.

(2) Figures to the right indicate marks.

(3) Be precise and to the point in answering the descriptive questions.

SECTION-I

Q1. A What are the essential qualities of a protective system. (06)

Q1. B Why is a power system divided into a number of protective zones? Why do adjacent protective zones overlap? What is a blind spot. (04)

OR

Q1. A Define CT burden, knee point, over reach, unit protection. (04)

Q1. B What is primary protection? What is the need for back-up. Discuss different types of back-up protections used. (06)

Q2. A Define PSM and TMS. Discuss the time grading and current grading over current protection schemes. What are the limitations of these schemes. (10)

OR

Q2. A What is the significance of maximum torque angle in directional over current relays? What are applications of directional relays. (05)

Q2. B Discuss the 3 stepped time distance protection using impedance relays. (05)

Q3. Attempt any 2: (10)

A Walsh Hadamard Transform technique.

B Buchholz relay.

C Principle of operation of a MHO relay.

SECTION-II

- Q4. A Discuss auto-reclosing based on number of phases. (05)
- Q4. B Discuss over fluxing in a transformer. What protection is used for the same. (05)
- OR
- Q4. A Discuss auto-reclosing based on speed. (05)
- Q4. B What is meant by single phasing in an induction motor? What protection is used for the same. (05)
- Q5. A How are the limitations of simple differential protection in a transformer overcome by biased differential protection. (05)
- Q5. B Write a note on negative phase sequence protection in a generator. (05)
- OR
- Q5. A What is the impact of CT saturation on bus-bar differential protection. How is this impact catered to. (05)
- Q5. B Explain the concept of adaptive relaying? What equipments are required to implement this concept. (05)
- Q6. Attempt any 2: (10)
- A Harmonic restraint relay.
 - B Protection for loss of excitation in a generator.
 - C Advantages of auto-reclosure

-----END OF PAPER-----