

Code No: **R41023****R10****Set No. 1****IV B.Tech I Semester Supplementary Examinations, Oct/Nov - 2018****SWITCH GEAR AND PROTECTION****(Electrical and Electronics Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions
All Questions carry equal marks***********

- 1 a) Explain the influence of power factor on current interruption. [8]
b) In a S.C test on a 3-pole, 110KV CB p.f of the fault was 0.4, the recovery voltage was 0.95 times full time value. The breaking current was symmetrical. The frequency of oscillation of re-striking voltage was 15000 c/sec. Estimate the average rate of rise of re-striking voltage. The neutral is grounded and the fault involves earth. [7]
- 2 With a neat sketch explain the principle of operation of an ABCB. Why an arc chute and a blow out coil are used in a CB. Explain briefly why it is easier to break current in an ac CB than in a dc CB. What technique is adopted for dc CB? [15]
- 3 a) Derive an expression for torque produced by an induction relay. [8]
b) Explain the distance relay protection schemes. [7]
- 4 a) Why does earth fault in a stator winding of a generator pose a serious problem? [8]
b) What types of protective device are used for the protection of an alternator against overheating of its (i) stator and (ii) rotor? Discuss them in brief. [7]
- 5 a) What is meant by Buchholz relay? Which equipment is protected by it? For what type of fault is it employed? With neat diagram discuss its working principle. [8]
b) Explain the protection of transformer by using merz-price system of protection with the help of neat diagram. [7]
- 6 a) Explain the scheme of protection for a ring main feeder. [8]
b) Discuss and compare briefly various bus bar arrangements in a power system. [7]
- 7 a) Explain a static IDMT over current relay, giving a neat block diagram. [8]
b) Discuss the comparative benefits and limitations of electromagnetic, static and microprocessor based digital relays. [7]
- 8 a) State the various causes of over voltages in a power system. Name the various devices used for protection against overvoltage due to lightning. [8]
b) Explain the arcing grounds and grounding practices. [7]