

Code No: **R41023****R10****Set No. 1****IV B.Tech I Semester Supplementary Examinations, March/April - 2016****SWITCH GEAR AND PROTECTION****(Electrical and Electronics Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions****All Questions carry equal marks**

- 1 Explain successive re-strikes and current chopping as applied to the interruption of capacitive and low inductive currents respectively. How does the resistance help in such conditions? [15]
- 2 a) Describe with a sketch of a cross blast type air CB. [8]
b) Discuss the principle of arc interruption in an oil CB and ABCB. [7]
- 3 a) What are the various types of over current relays and give their approximate characteristics? Also give their applications. [8]
b) Compare the characteristics of i) impedance relay ii) mho relay and iii) reactance relay. Also give their applications. [7]
- 4 a) Name a list of faults, which may occur on an alternator. State the protections to be used for each of such faults. [8]
b) A 11kV, 100MVA alternator is grounded through a resistance of 5Ω the CT's have a ratio of 1000/5 the relay is set to operate when there is an out of balance current of 1A. What percentage of the generator winding will be protected by the percentage differential scheme of protection? [7]
- 5 a) Describe the construction and working of a Buchholz relay and its use. [8]
b) Discuss the special factors that are to be considered while designing the protection scheme for a large Y- Δ power transformer. [7]
- 6 Explain in details carrier current protection scheme. Describe carrier phase comparison relay with neat sketches. [15]
- 7 a) How will you realize the following circuits in a static relays
i) Level detector ii) Time delay circuit and iii) output circuit [8]
b) What are the advantages of digital relays? [7]
- 8 a) Explain the effects of ungrounded neutral on system performance. [8]
b) Draw and discuss the voltage-time characteristics of impulse wave. [7]