ELL 400 : POWER SYSTEM PROTECTION

Minor Exam - I

Time : 01 Hour **Full Marks : 20**

1. (a) Give a complete schematic diagram of any one of the schemes for the complete protection of three phase feeder using directional OCR. Mention in tabular form the relay operation for each type of possible fault. [2.5+1.5]
   (b) What are the factors those affect the re-striking voltage across a CB contact ? [1]
   (c) How RRRV and $RRRV_{max}$ can be controlled ? [1]
   (d) How the operating torque is produced in an OC relay ? [1.5]
   (e) Give a neat sketch to obtain I_0 and V_0 using CTs and PTs. [2]
   (g) Find out the natural frequency of transient overvoltage when the CB is opened following a fault. Assume L = 0.5 henry and C = 5000 pF. What will be the frequency of oscillation if a shunt resistance of 10 kΩ is added across the CB. What minimum value of resistance will prevent the oscillation? [3]

2. (a) What are the inputs to a directional phase fault relay connected in phase B ? [2]
   (b) A distribution feeder is equipped with a IDMT OC relay. The CT in the feeder is 500/ 5 A. The relay is set at 125%. Find the operating time of the relay for a fault current of 1.5 kA, if the TMS of the relay is 0.1 ? [2]
   (c) Discuss in brief the effect of asymmetric fault current on CT operation . [1]
   (d) Explain current chopping in brief. [1]
   (e) How different plug setting is achieved in an OCR [1.5]