Department of Electronics & Communication Engineering

Faculty of Engineering, Integral University, Lucknow

Quiz 2

Power System Analysis (EE-602)

Candidate Name & Roll Number :

Date : - March - 2013

Maximum Marks : 11

Group: Pre Final Year : Electrical & Electronics Engineering

1. The unit of inertia constant H is
   (a) MJ/MVA.
   (b) kV/MVA.
   (c) rad/M VA.
2. The inertia of two group of machines, which swing together are M1 and M2. The inertia constant of the system is
   (a) M1~M2.
   (b) M1 + M2.
   (c) $\frac{M1M2}{M1+M2}$
   (d) $+\frac{M1}{M2}$
3. A 100 MVA, 11 kV, 3-phase, 50 Hz. 8-pole synchronous generator has an inertia constant H of equal to 4 seconds. The energy stored in the rotor of the generator at synchronous speed will be
   (a) 100 MJ.
   (b) 400 MJ.
   (c) 800 MJ.
   (d) 12.5 MJ.
4. The constant H of a turbo-generator of 200 MVA is 6.0. Its value corresponding to 300 MVA base will be
   (a) 9.0.
   (b) 4.0.

(c) 6.0.

(d) 13.5.

5. If a generator of 250 MVA rating has an inertia constant of 6 MJ/MVA, its inertia constant on a 100 MVA base is

   (a) 15 MJ/MVA.

   (b) 10.5 MJ/MVA.

   (c) 6 MJ/MVA.

   (d) 2.4 MJ/MVA.

6. A power station consists of two synchronous generators A and B of ratings 250 MVA and 500 MVA with intertia 1.6 and 1.0 Pu respectively on their own base MVA ratings. The equivalent Pu inertia constant for the system on 100 MVA common base is

   (a)2.6.

   (b)6.15.

   (c)1.625.

   (d) 9.

7. The inertia constant of a 100 MVA 50 Hz,4-pole generator is 10 MJ/MVA. If the mechanical input to the machine is suddenly raised from 50 MW to 75 MW, the rotor acceleration will be equal to

   (a) 225 electrical degrees/s^2.

   (b) 22.5 electrical degrees/s^2.

   (c) 125 electrical degrees/s^2.

   (d) 12.5 electrical degrees/s^2.

8. If the torque angle of an alternator increases infinitely the system will show

   (a) steady state stability.

   (b) Transient stability.

   (c) instability.

   (d) none of these.

9. Equal area criterion gives the information regarding
   (a) stability region.
   (b) Absolute stability.
   (c) Relative stability.
   (d) Swing curves.

10. The critical clearing time of a fault in power system is related to
    (a) reactive power limit.
    (b) Short-circuit limit.
    (c) steady-state stability limit.
    (d) Transient stability limit.

11. The inertia constants of two groups of machines which do not swing together are M1 and M2 such that M1 > M2. It is proposed to add some inertia to one of the two groups of machines for improving the transient stability of the system. It should be added to
    (a)M1.
    (b)M9.
    (c)Either to M1 or to M9.
    (d) Neither of the above.