

BHAGALPUR COLLEGE OF ENGINEERING

Mid Semester Examination (2017-18)

Branch: Electrical Engineering,

Subject: Power System- II (031508)

Total Marks: 20

Semester: V

Time: 02 hrs.

Answer any 04 (four) questions.

Q.1. Explain the functions of the followings in detail in context with Steam Power Plant:

(i) Boiler (ii) Super Heater (iii) Economiser (iv) Condenser (v) Steam Turbines

(1x5 marks)

Q.2. The demands of three consumers are given below:

| Time | Consumer 1 | Consumer 2 | Consumer 3 |
|----------------------|------------|------------|------------|
| 12 midnight to 8 am | No load | 200 W | No Load |
| 8 am to 2 pm | 600 W | No Load | 200 W |
| 2 pm to 4 pm | 200 W | 1000 W | 1200 W |
| 4 pm to 10 pm | 800 W | No Load | No Load |
| 10 pm to 12 midnight | No Load | 200 W | 200 W |

Plot the Load Curve and find (i) Maximum demand of individual consumer (ii) Load factor of individual consumer (iii) Diversity Factor (iv) Load Factor of the station.

(1+4 marks)

Q.3. Derive an expression for fault current for Double Line to Ground fault for a 3 phase unloaded alternator with neutral grounded through impedance Z_n and fault impedance Z_f .

(5 marks)

Q.4. Explain the term 'Sequence Impedance'. Discuss positive, negative and zero sequence impedance with reference to transmission line, transformers and synchronous generators.

(5 marks)

Q.5. Discuss in detail the various factors that affect power system transient stability.

(5 marks)

Q.6. A synchronous generator is feeding power to an infinite bus via a double circuit line. A 3 phase fault occurs at the middle of any line. Explain the phenomenon using Equal Area Criterion. Also, derive an expression for Critical Clearing Angle and Critical Clearing Time for the system to be stable.

(2+3 marks)

