B.E / B.Tech (Full Time) DEGREE END SEMSESTER EXAMINATIONS, APRIL / MAY 2011

MECHANICAL AND MANUFACTURING ENGINEERING BRANCH

THIRD SEMESTER

EE 9211 ELECTRICAL DRIVES & CONTROL

(REGULATIONS 2008)

Time: 3 Hours Max. Marks: 100

Answer ALL Questions

PART -A (10 x 2 = 20)

1. What is the purpose of using group drive in industrial applications?
2. Draw the characteristic curve of HRC fuse.
3. List out the merits and demerits of armature speed control of DC shunt motor.
4. Write short notes on step up chopper.
5. Draw the block diagram for the rotor resistance control.
6. What do you meant by variable voltage variable frequency control of Induction motor?
7. What are the merits of using starters in DC machines?
8. What is the basic working principle of frequency sensing relay in Induction motors?
9. What do you understand by the term equivalent power method?
10. What are the various steps involved for making pulp from its raw materials in paper mill?

PART -B (5 x 16 = 80)

11. (i)Explain the operation of solenoid type contactor with neat diagram. (8)
    (ii) Write short notes on MCB and MCCB. (8)

12. (a) Explain the Ward Leonard method of speed control in DC drives? What are its merits and demerits?

(OR)

(b) (i) Explain the series –parallel operation of DC shunt motor drives. (8)
(ii) With neat diagram, explain the operation of step down chopper and also derive the relationship between the input and output voltage relationships. (8)

13. (a) Explain the speed control of induction motor by pole changing and stator frequency variation method.

(OR)

(b) Explain the operation of single phase half bridge and full bridge inverter circuit with neat diagram and waveforms.

14. (a) What is the purpose of using relays in control of electrical drives? Explain the working principle of time delay relay with neat diagrams.

(OR)

(b) What are the various types of starters used for induction motor? Explain the operation of Direct on line starter with provision for speed reversal with neat diagram.

15.(a) (i) Tabulate the different types of insulating materials. (8)

(ii) Derive the expression for the heating and cooling of an electric drive.(8)

(OR)

(b) Write short notes on:

(i) Continuous duty with constant load

(ii) Continuous duty with variable load

(iii) Intermittent duty

(iv) Short time duty