Code No. 4121/N

FACULTY OF ENGINEERING

B.E. 2/4 (ECE) I-Sem. Suppl. Examination

May/June - 2008

Subject : Electrical Technology

Time : 3 hours] [Max. Marks : 75

Note : Answer ***all*** questions of Part-A.
Answer ***five*** questions from Part-B.

PART - A (25 marks)

1. What are effects of armature reaction in D.C generator ? 3
2. Draw neat diagram of a long shunt DC motor. 2
3. A 250V shunt motor takes a total current of 20A. The shunt field and armature resistances are 200Ω & 0.3Ω respectively. Determine the back emf and gross mechanical power in armature. 3
4. By flux control method of speed of DC shunt motor, we can obtain speeds of _____. 2
5. Draw the equivalent ckt diagram of transformer referred to primary. 3
6. If the copper losses at full load are 200W, then at 3/4 load losses are——. 2
7. Define pitch factor and Distribution factor. 3
8. A 2-pole 3-ϕ 50Hz induction motor is running on no load with a slip of 4%. Calculate (i) the synchronous speed and (ii) speed of motor. 2
9. What are the advantages of non-conventional energy sources ? 3
10. Explain regulation of a transmission line. 2

PART - B (5×10=50 marks)

11. (a) Explain the principle of operation of DC generator. 5

(b) A shunt generator supplies 96A at a terminal voltage of 200V. The armature and shunt field resistances are 0.1Ω and 50Ω respectively. The iron and frictional losses are 2500W. Find (i) emf generated (ii) copper losses (iii) commercial efficiency. 5

12. (a) Give the relationship between line and phase quantities for star and delta connections. 5

(b) The starter of a 3-ϕ, 8 pole, 750rpm alternator has 72 slots and 10 conductors /slot. Calculate the rms values of emf per phase, if the flux per pole is 0.1 wb. Assume pitch factor and distribution factor as 0.96 each. 5

13. (a) Explain transformer on no-load with phasor diagram. 4

(b) A 10KvA, 2000/400v. 1-ϕ transformer has R_1=5Ω, X_1=1.1Ω, R_2=0.01Ω and X_2=0.035Ω. Calculate (i) the equivalent impedance of the transformer referred to the primary and total cu losses. 6

14. (a) Explain the operation of capacitor start 4 run motors. 5

(b) Explain the method of speed control of induction motor. 5

15. Explain with neat diagram, the operation of Hydro power plant. 10

16. (a) Explain measurement of power by two wattmeter method. 5

(b) Explain regulation of transmission line. 5

17. Write short notes on : 10

(a) Speed control of DC motors

(b) Auto transformers.
