PRACTICAL PROBLEM BANK

1. Obtain the “efficiency vs output” characteristic of the given single phase transformer without conducting a load test at 0.8pf lag.
2. Obtain the “regulation vs pf ” characteristic of the given single phase transformer without conducting a load test at rated load.
3. Predetermine the maximum efficiency of the given single phase transformer and the load at which it occurs.
4. Obtain the circuit model of the given single phase transformer referred to LV side.
5. Predetermine the characteristic “efficiency vs output” of the given dc shunt machine. When it is operated as a generator.
6. Predetermine the characteristic “efficiency vs output” of the given dc shunt machine. When it is operated as a motor.
7. Predetermine the efficiency and line current of the given dc motor when it delivers the rated output.
8. Obtain the “field control”characteristic of the dc shunt motor on no load at 100% rated value of armature applied voltage.
9. Obtain the “armature control” characteristic of the dc shunt motor on no load at 100% rated value of excitation.
10. Obtain the characteristic “synchronous impedance vs field current” of the given 3-phase synchronous generator.
11. Obtain experimentally the characteristic “overall efficiency vs output” of the given dc motor generator set.
12. Conducts an open circuit test on given dc shunt generator at rated speed and hence obtain the occ. Find critical resistance at this speed. Also find the critical speed.
13. Obtain the characteristic “efficiency vs output “of the given dc shunt generator by conducting a load test. Assume efficiency of the generator = efficiency of the motor, at all loads.
14. Obtain the external characteristics of the given dc shunt generator by conducting a load test.
15. Obtain the internal characteristics of the given dc shunt generator by conducting a load test.
16. Conduct a back to back test on the given pair of a dc machines and obtain the efficiency of both the machines when the generator armature supplies a current of 6 Amperes.
17. Conduct a Hopkinson`s test on the given pair of a dc machines and obtain the efficiency of both the machines when the motor armature takes a current of 6 Amperes.
18. Two independent single- phase loads of upf are to be supplied from a two- phase supply. Only three-phase supply is available. Make the necessary connection, conduct a load test and obtain “efficiency vs output “characteristics for the system, which converts the three-phase supply into a two –phase supply .

19. Conduct Sumner's test on the given pair of single phase transformer and obtain the "efficiency vs output "at 0.8 pf lag.
20. Conduct Sumner's test on the given pair of single phase transformers and obtain the "regulation vs power factor at rated load".
21. Predetermine the maximum efficiency of each of the given pair of single-phase transformer by conducting a back to back test.
22. Obtain the "efficiency vs output "characteristic of the given three-phase induction motor.
23. Obtain the "line current vs output "characteristic of the given three-phase induction motor.
24. Obtain the "power factor vs output "characteristic of the given three-phase induction motor.
25. Conduct a load test on the given dc shunt generator and obtain the "efficiency vs output "characteristic. Assume efficiency of the generator = Efficiency of the motor, at all loads. An induction motor is to be used as a prime mover.
26. Obtain the external characteristics of the given dc shunt generator experimentally using the given three-phase induction motor as prime mover.
27. Obtain the V-curves of the given synchronous motor at any two loads.

BEST OF LUCK

BIRLA INSTITUTE OF TECHNOLOGY AND SCINCE, PILANI

LABORATORY EXAMINATION –EM (EEE /INSTR F211)

Instructions to candidates:

1. Report for examination at least 10 minutes before schedule.
2. Submit the evaluated lab report file.
3. Pick up one answer book in order. The answer book is marked with your panel number and your experiment number.
4. Go to your panel with your answer book and a copy of the question bank.
5. Write complete question corresponding to your experiment number on the third page of your answer book after consulting the question bank.
6. Draw a neat circuit diagram for your experiment below the question using standard symbols with the help of geometrical instruments. Enter all ranges/ ratings and name plate details of the machine.
7. Get the circuit diagram approved by the examiner.
8. Hookup the circuit and get connections approved by the examiner. **Note that approval for connections guarantees safety of the equipment only.**
9. Start the experiment. Get one set of observations signed by the examiner.
   IF YOU FORGET THIS STEP, ALL YOUR OBSERVATIONES AND CALCULATIONS WILL BE CONSIDERED AS **"NULL AND VOID"** AND HENCE NO CREDIT FOR 11(C) AND (D) COMPONENTES.
10. Break up of marks ia as follows:

a)	**Circuit diagram**	**6**
b)	**Connections**	**6**
c)	**Performance and observations**	**6**
d)	**Calculations/result/graph etc.**	**6**
e)	*** viva**	**6**

*No recheck possible for this component.

11. Supply will be switched off after 90 minutes and submit within 120 minutes.
12. Only one change of experiments will be permitted at the cost of 50% credit.
13. Circuit diagram will not be given.

Instructor in charge