

ELECTRICAL MACHINES LAB - I

VIVA QUESTIONS

Exp.No.1 LOAD TEST ON D.C. SHUNT MOTOR

1. Why should the field rheostat be kept in the position of minimum resistance?
2. What is the loading arrangement used in a dc motor?
3. How can the direction of rotation of a DC shunt motor be reversed?
4. What are the mechanical and electrical characteristics of a DC shunt motor?
5. What are the applications of a DC shunt motor?

Exp.No.2 LOAD TEST ON D.C. SERIES MOTOR

1. Why a DC series motor should never be started without load?
2. Why a DC series motor has a high starting torque?
3. Compare the resistances of the field windings of DC shunt and series motor?
4. What are the applications of DC series motor?
5. Comment on the Speed – Torque characteristics of a DC series motor.
6. How does the torque vary with the armature current in a DC series motor?

Exp.No. 3 SPEED CONTROL OF DC SHUNT MOTOR

1. How does the speed of a DC shunt motor vary with armature voltage and field current?
2. Compare the resistance of the armature and field winding.
3. What is the importance of speed control of DC motor in industrial applications?
4. Which of the two methods of speed control is better and why?
5. Why is the speed of DC shunt motor practically constant under normal load condition?
6. What are the factors affecting the speed of a DC shunt motor?

EXP.NO. 4 OCC & LOAD TEST ON SEPERATELY EXCITED DC GENERATOR

1. What is the principle of generator?
2. What is meant by residual magnetism?
3. What is critical field resistance?
4. What is meant by saturation?
5. What are the reasons for the drooping load characteristics?
6. What is the difference between external and internal characteristics?
7. Write the voltage equation of a separately excited DC generator. State the difference between generated emf and terminal voltage.

Exp. No. 5 OCC AND LOAD TEST ON DC SHUNT GENERATOR

1. What is the difference between a separately excited dc generator and dc shunt generator?
2. If a DC shunt generator fails to build up voltage, what may be the probable reasons?
3. What is SPST? What is its use in this experiment?
4. What is the reason for the presence of residual magnetism in the field poles?
5. Why does the terminal voltage decrease as the load current increases?
6. Write the voltage equation of a DC shunt generator. State the difference between generated emf and terminal voltage.

Exp.No. 7 LOAD TEST ON SINGLE PHASE TRANSFORMER

1. What is the principle of a transformer?
2. What are the types of transformer?
3. What are the applications of transformer?
4. Why is the capacity of a transformer specified as KVA and not as KW?
5. What is the condition for maximum efficiency of a transformer? From the graph, find the load at which it occurs.
6. Why is the efficiency of a transformer higher than that of motors?

EXP.NO. 8 OC AND SC TESTS ON SINGLE PHASE TRANSFORMER

1. What is the purpose of OC and SC tests?
2. Why is the core of a transformer laminated?
3. What is meant by regulation?
4. Define the term transformation ratio?
5. What are the components of no load current?
6. What are the parameters of the equivalent circuit?
7. How are the parameters referred to the HV or LV side? Explain with an example.

EXP.NO. 9 SWINBURNE'S TEST

1. What is the purpose of Swinburne's test?
2. What are the constant losses in a DC machine?
3. What are the assumptions made in Swinburne's test?
4. Why is the indirect method preferred to the direct loading test?
5. The efficiency of DC machine is generally higher when it works as a generator than when it works as a motor. Is this statement true or false? Justify your answer with proper reasons.

EXP.NO. 10 SEPARATION OF IRON LOSSES OF DC MACHINE

1. What are the losses in a DC machine?
2. Why is the field copper loss negligible at no load?
3. Why does the armature resistance increase when the motor is running?
4. How can the mechanical losses be reduced?
5. How can the core losses be minimized?

EXP.NO. 11 HOPKINSON'S TEST

1. What is the purpose of Hopkinson's test?
2. What are the precautions to be observed in this test?
3. What are the advantages of Hopkinson's test?
4. What are the conditions for conducting the test?
5. Why the adjustments are done in the field rheostat of generator and motor?
6. If the voltmeter across the SPST switch reads zero what does it indicate? If it does not read zero value what does it indicate?
7. What are the other names for Hopkinson's test?

EXP.NO. 12 SUMPNER'S TEST

1. What is the purpose of conducting the Sumpner's test?
2. What are the losses in a transformer?
3. Why LPF wattmeter is used in OC test?
4. Why UPF wattmeter is used in SC test?
5. If the voltmeter across the SPST switch does not read zero value, what does it indicate? What has to be done to make it read zero?
6. What is meant by predetermination of efficiency?
7. What are other names for Sumpner's test?

EXP.NO. 13 STUDY OF 3 PHASE TRANSFORMER CONNECTIONS

1. What are the various types of three phase transformer connections?
2. What is meant by vector grouping?
3. State the relationship between line voltage and phase voltage in star connection.
4. What are the different types of three phase transformers?
5. What are the applications of the different types of three phase transformers?