**EM-1**

**Question Bank of Unit-4**

1. Describe Sumner’s test for determination of efficiency of transformer.
2. What is ALL-DAY efficiency & what is it’s importance? For what type of transformer it is used.
3. Explain working of single phase autotransformer & it’s application.
4. Show that there will be saving of copper in auto-transformer in comparison to same rating of two winding transformer.
5. In back to back test show that one transformer has slightly less temperature rise than other.
6. Explain why in testing large transformer the open circuit test is carried with the HV winding open & the short circuit test with LV winding shorted.
7. Show that in case of an auto-transformer :
$\frac{ Inductively transferred power}{Total power}$ =$\frac{HV-LV}{HV}$
8. In Sumpner,s test ,reading of the wattmeter recoding the core losses, remain unaffected when low voltage is injected in the secondary series circuit explain;
9. Why the exciting current of single transformer contains harmonic even when the supply voltage is a sine wave.
10. Discuss the relative merits & demerits of an autotransformer.
11. Draw the phasor diagram of step down transformer, feeding a lagging power factor load.
12. Explain short circuit test. Why the core losses is assumed negligible in this test.
13. Define efficiency, voltage regulation, & all day efficiency. Derive the condition for max. Efficiency.
14. Find all day efficiency of the transformer having max. Efficiency of 98.5% at 20 KVA ,unity pf. & loaded as follows
11 hours: 5 KW , .7 PF lag.
6 hours: 8 KW, .8 PF lag.
7 hours: no load
the max. Efficiency of the transformer occurs at 80% of full load.
15. A 10 KVA, 2500/250 V, single phase two winding transformer is used as an autotransformer to raise the supply voltage of 2500V to an output voltage of 262V. The LV winding of two winding transformer consists of two equal parts of 125 V each .I both part of LV winding are used, determine autotransformer KVA output .Also calculate the KVA transformed & KVA conducted.