EEE/ETI 3105   ASSIGNMENT 1   Due Date 17/06/2025   @3PM

(a) A single-phase transformer with a ratio of 6600/400 V takes a no-load current of 0.7 A at 0.24 power factor lagging. If a current of 120 A at a power factor of 0.8 lagging is supplied by its secondary. Estimate the current drawn by the primary winding.   *[5 Marks]*

(b) A 12 kVA, 220/440V, 50Hz single phase transformer gave the following test data:

No Load:	220V,	2 A,	165W (LV– side)
S.C test:	12V,	15 A,	60W- (HV side)

Draw the equivalent circuit as referred to LV side and insert the appropriate values. Find the secondary terminal voltage on full load and as a power factor of 0.8 lag.   *[15 Marks]*

(c) A 400 kVA, distribution transformer has full load iron loss of 2.5kW and copper loss of 3.5kW. During a day, its load cycle for 24 hours is:

    6 hours: 300kW at 0.8 p.f.

   10 hours: 200kW at 0.7 p.f

    4 hours: 100kW at 0.9 p.f

    4 hours: No load

Determine its all-day efficiency.   *[15 marks]*

....*THE END*..