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Daffodil International University
Dept. of Electrical and Electronic Engineering
Summer 2026 | 0713-213: Energy Conversion I

BA

Quiz - 1 | 15 June 2026 | CO-01 | Full Marks: **15**

1. Derive the EMF equation of a transformer. **[3]**
2. The core of a 120 kVA, 11000/540 V, 50-Hz, 1-phase, core type transformer has a cross-section of 21 cm × 21 cm. Find (i) the number of H.V. and L.V. turns per phase and (ii) the e.m.f. per turn if the maximum core density is not to exceed 1.25 wb/m^2. Assume a stacking factor of 0.9. **[4]**
3. Draw the phasor diagram of **inductively** loaded transformer by considering winding resistance but no leakage reactance. **[3]**
4. (a) A 2200/250V transformer draws a no-load primary current of 0.58 A and absorbs 410 watts. Find the magnetizing and iron loss currents. **[5]**
   (b) A 2500/230 V transformer takes 0.6 A at a p.f. of 0.28 on open circuit in secondary. Find magnetizing and working components of no-load primary current.