

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

BA

CO-01

Quiz - 1

15 June 2026

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 $21 \text{ cm} \times 21 \text{ cm}$. 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.