

Physics 2326 - Dr. Terry Honan

■ Test 4 - A - Answers

Problem 1 (i) A (ii) C

Problem 2 (a) 213 V/m (b) $8.06 \times 10^{-6} \text{ kg}\cdot\text{m/s}$ (c) $9.42 \times 10^5 \text{ W}$

Problem 23 $1.28 < n < 1.60$

Problem 4 (a) 0.0108 J (b) $\omega = 377 \text{ rad/s}$ and $B = 1.061 \text{ T}$

Problem 5 (a) -66.4° (b) 255 V (c) $\mathcal{P}_L = 0 = \mathcal{P}_C$ and $\mathcal{P}_R = 231 \text{ W}$

Problem 6 (a) $3.33 \times 10^{-10} \text{ N}$ (b) $t = 3.14 \text{ ms}$ and 0.100 A (d) $t = 3.00 \tau$

Problem 7 $\mu_0 n N \ell^2$

■ Test 4 - B - Answers

Problem 1 (i) C (ii) G

Problem 2 (a) 1.263 mJ (b) 0.670 V

Problem 3 $\frac{\mu_0 \ell}{2\pi} \ln \frac{b}{a}$

Problem 4 (a) 9.00 A (b) 71.4 mA (c) 91.8 mW (d) 0.869 ms (e) 4.08 mA (f) $130. \text{ Hz}$ and 0.222 A

Problem 5 (a) 174 V/m (b) $5.38 \times 10^{-6} \text{ kg}\cdot\text{m/s}$ (c) $4.02 \times 10^5 \text{ W}$ (d) 3 m

Problem 6 1.70 m