Form A:	2. B	3. G	4. D	5. A	6. C
Form B:	2. G	3. D	4. A	5. C	6. B
Form C:	2. D	3. A	4. C	5. B	6. G
Form D:	2. A	3. C	4. B	5. G	6. D
Form E:	2. B	3. G	4. D	5. A	6. C

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7. (A) answer 1 pt, explanation 4 pts. step-up. V is increasing and/or I is decreasing.

(B) answer 1 pt, explanation 4 pts. AC. Induction requires a changing magnetic flux.

(C) Translate 5 pts, Equate 5 pts, Solve 4 pts, Sig Dig 1 pt.

$V_p = 525V \quad I_p = 102\ A \quad I_s = 2.04A \quad V_s/V_p = I_p/I_s$

$V_s = V_p I_p / I_s = (525)(102)/(2.04) = \underline{26.3kV} = \underline{2.63\times10^4 V}.$

8. (A) Translate 3 pts, Equate 3 pts, Solve 3 pts, Sig Dig 1 pt.

$S = EB/\mu_0 = (Bc)(B)/\mu_0 = cB^2/\mu_0$

$S = (3.00\times10^8)(5.00\times10^{-6})^2/(4\pi\times10^{-7}) = \underline{5.97\times10^3\ W/m^2}$

(B) same as (A).

$E = Bc = (5.00\times10^{-6})(3.00\times10^8) = \underline{1.50\times10^3\ N/C}\ \underline{(or\ V/m)}$

(C) answer 1 pt, explanation 4 pts. $\underline{\hat{E} = north}$ by RHR (or LHR)

9. (A) answer 1 pt, explanation 4 pts. $\hat{F}_M = up$, $\hat{B} = north$, $Q<0$, $\hat{v} = west$ by RHR (or LHR)

(B) Translate 6 pts, Equate 6 pts, Solve 7 pts, Sig Dig 1 pt.

$\Sigma\vec{F} = 0 \quad \vec{F}_M + \vec{F}_g = 0 \quad (+QvB|\sin\theta|) + (-mg) = 0$

$$v = \frac{mg}{QB|\sin\theta|} = \frac{(9.11\times10^{-31})(9.8)}{(1.60\times10^{-19})(3.00\times10^{-5})(|\sin 90^\circ|)}$$

$v = \underline{1.86\times10^{-6}\ m/sec} = \underline{1.86\ \mu m/sec}$