

Physics 104
Spring, 2008

Practice Questions for Final Exam

Sorry, but we don't promise that the questions on the final will map directly to these practice questions.

Relevant constants (but not the answers) will be provided for the exam.

From the text:

Pages 683- 684, Problems:

4. [a. 2.5×10^7 N/C at 24° below the $-x$ -axis. b. 1.0×10^4 m/s² at 24° above the $+x$ -axis.]
9. [a. 35.0Ω . b. 0.686 A]
21. [a. $710 \mu\text{F}$. b. 9.8 . c. 8.0 kW. d. 64 J.]

Pages 797- 799, Problems:

5. [1.8×10^{-17} N out of the plane of the paper in the side view (or to the right in the end-on view.)]
9. [a. I is CCW. F_B is away from the wire. b. No current. No F_B . c. I is CW. F_B is toward the wire.]
18. [a. $Q = (\epsilon_0 A m v^2)/(2de)$. The west plate is $+$, and the east plate is $-$. b. $E = vB$ north. c. Ions are deflected upward. d. $m = (eBD)/(2v)$.]

Pages 950- 951, Problems:

6. [a. $I_3 = 0.0938I_0$. b. $I_3 = 0.188 I_0$. c. Remove the middle polarizer in both cases. d. For case a, remove the first polarizer. For case b, remove the last.]
8. [a. 5.3 cm to the left of the converging lens. b. 3.4 cm. c. The final image is upright.]
12. [100 nm]
19. [There is room for 2 maxima on each side of the central maximum, so there are 5 maxima on the screen.]

Pages 1102- 1103, Problems:

4. [a. 4.09×10^{16} J. b. 1.13×10^{10} kW-h.]
6. [a. 0.83 V. b. For 360 nm, no electrons will be emitted, since K_{max} is less than the work function.]
12. [17.59 MeV]
19. [$0.966c$]
22. [0.0032 nm]