

PHYSICS 242, GENERAL PHYSICS II, SPRING SEMESTER, 2017

FINAL EXAM INFORMATION

DATE AND TIME, 242-001 (8 AM SECTION): MONDAY, MAY 8, 1:00 TO 3:00 PM

DATE AND TIME, 242-002 (9 AM SECTION): TUESDAY, MAY 9, 1:00 TO 3:00 PM

(WE HAVE THE AUDITORIUM ON TUESDAY, NOT MWF, SO WE USE THE TR FINAL EXAM TIMES.)

PLACE: MARTEENA AUDITORIUM (IN YOUR USUAL SEAT)

BRING: PENCILS, AN ERASER, AND ONE $8\frac{1}{2}$ " \times 11" SHEET OF PAPER (THE SAME SIZE AS THIS HANDOUT) WITH *ANYTHING* WRITTEN ON BOTH SIDES *IN YOUR OWN HANDWRITING* (THUS WE DO **NOT** ALLOW PHOTOCOPIES). (WE ALSO DO **NOT** ALLOW JUST BUNDLING TOGETHER ALL YOUR OLD 3" \times 5" CARDS, BECAUSE THAT BUNDLING DEFEATS THE REVIEW PURPOSE OF THE FINAL AND GIVES MUCH MORE AREA.) BE SURE TO INCLUDE THE VALUES OF ALL CONSTANTS THAT APPEAR IN EQUATIONS (FOR EXAMPLE, ϵ_0 , μ_0 , AND c).

WE WILL COLLECT YOUR $8\frac{1}{2}$ " \times 11" SHEET OF PAPER ALONG WITH YOUR EXAM.

We allow **NO** cell phones, calculators, or any other non-medical electronic devices.

NO MAKE-UP EXAM: THERE IS *NO* MAKE-UP EXAM FOR THE FINAL (EXCEPT FOR HOSPITALIZATION AND THE LIKE). PLEASE DON'T EVEN BE LATE. *REMEMBER, IF YOU ARRIVE AFTER THE FIRST STUDENT HAS LEFT, YOU ARE TOO LATE TO TAKE THE EXAM.*

TEST FORMAT: THE TEST WILL CONTAIN 52 MULTIPLE-CHOICE QUESTIONS (FOUR CHOICES AND FOUR POINTS EACH). THUS YOU CAN EARN AS MANY AS 208 POINTS (A "SUPER A").

MATERIAL COVERED: ONLY THAT MATERIAL FROM OUR SPRING, 2017, OBJECTIVES SHEETS AS TESTED ON OUR TUESDAY EXAMS—PLUS THE FOLLOWING:

THE FIRST FOUR FINAL EXAM QUESTIONS REQUIRE MATCHING VERBAL DESCRIPTIONS TO OUR VERSIONS OF MAXWELL'S EQUATIONS BELOW (WRITTEN FOR NO DIELECTRIC OR MAGNETIC MATERIALS). THE NEXT QUESTIONS COVER BLOCK 1 MATERIAL, THE QUESTIONS AFTER THAT BLOCK 2 MATERIAL, AND SO ON (AS MUCH AS POSSIBLE CONSIDERING HOW CONCEPTS BUILT UPON ONE ANOTHER IN THE COURSE).

OUR VERSIONS OF MAXWELL'S FOUR EQUATIONS: Electric field lines can start on positive charges and end on negative charges according to $\oint \vec{E} \cdot d\vec{A} = \frac{Q_{\text{encl}}}{\epsilon_0}$. Evidently there are no magnetic monopoles on which to start and end magnetic field lines according to $\oint \vec{B} \cdot d\vec{A} = 0$. Closed magnetic field lines are produced by the motion of charge and/or changing electric flux according to $\oint \vec{B} \cdot d\vec{l} = \mu_0(i_C + \epsilon_0 \frac{d\Phi_E}{dt})$. Closed electric field lines are evidently produced only by changing magnetic flux according to $\oint \vec{E} \cdot d\vec{l} = -\frac{d\Phi_B}{dt}$.