Rnumber	Exam5
R00151631	84
R00542746	
R00645753	84
R00755805	100
R00762970	84
R00766893	84
R00867387	100
R00867424	84
R00920841	84
R00945392	84
R01025253	68
R01045676	68
R01074223	
R01074436	68
R01075399	84
R01077981	84
R01080567	100
R01084235	84
R01085510	
R01085771	84
R01109294	34
R01113113	84
R01128456	100
R01148464	100
R01148668	100
R01165984	84
R01174627	34
R01175146	100
R01175785	68
R01176443	100
R01178396	100
R01182017	84
R01189420	100
R01290875	100
R01309869	84
R01314078	100
R01314409	100
R01344090	100
R01345745	100
R01348865	100
R01382754	84

EXAM 5

Note that in ##2,4 two choices in each were accepted as correct with the understanding that some of you might had used this or other accuracy in calculating the result. In #3 the two right choices represent the same answer in slightly different formats.

Summer 2015. Exam 5. QQ 1-3

#1.A 1μF circular plate capacitor in an RC circuit with resistance 1 MΩ is discharging from the initial voltage 1 V. The plate radius is 1 cm. What is the magnetic field between the plates just outside the capacitor at the beginning of discharge?
A. 0
B. 1T
C. 20 μT
D. 20mT
E. None of the above

#2. A cylinder solenoid of radius 1 cm having 1000 turns carries electric current 1 A. It is placed in the external magnetic field of strength1 T parallel to its axis. Work required to change the solenoid orientation to the opposite, equals
1. 0
2. 100 J
3. 0.65 J
4. 13 eV
5. None of the above

#3. If the amplitude of the magnetic field in a plane electromagnetic wave of angular frequency ω is B, and c is the speed of light, then the amplitude of the displacement current density (A/m^2) is
A. $\varepsilon_0 B\omega c$
B. $\mu_0 B\omega c$
C. $(\varepsilon_0/\mu_0)^{1/2}B\omega$
D. Zero, because current does not flow in vacuum
E. None of the above

Summer 2015. Exam 5. QQ 4-6

#4. Light is emitted by a bulb of power with intensity of 100 W. It falls normally on a fully absorbing concentric sphere of radius 1 m. The force of the radiation on the sphere is:
1. 1×10^{-4} N
2. 3.3×10^{-7} N
3. 6.6×10^{-7} N
4. None of the above
5. Cannot be calculated

#5. The index of refraction of germanium is 3.7. The critical angle for total internal reflection, at germanium air interface is about:
A. 80°
B. 34°
C. 60°
D. 22°
E. None of the above

#6. An object is 30 cm in front of a converging lens of focal length 10 cm. The image is :

A.Real and larger than the object
B.Real and the same size as the object
C.Real and smaller than the object
D.Virtual and the same size as the object
E.Virtual and smaller than the object.