

### EXAM 3

class2013			
R#	exam1	exam2	exam3
R00037897	50	34	34
R00223777	50	67	84
R00287049	67	100	84
R00715213	83	67	50
R00761392	83	67	100
R00785134	17	50	50
R00838484	17	67	84
R00859969	17	66	34
R00870071	50	17	100
R00894889	50	67	100
R00895168	83	50	34
R00895511	100	84	100
R00897586	34	34	17
R00900602	100	84	
R00903220	100	84	34
R00906938	100	100	100
R00915262	83	50	50
R00921430	100	100	100
R00921736	100	100	100
R00923038	100	50	100
R00928851	50	34	100
R00940836	83	66	
R00943226	50	84	100
R00976816	100	84	100
R00981453	83	100	100
R00982692	17	66	34
R00997132	83	50	100
R01006514	34	50	100
R01011603	67	100	100
R01023637	84	67	100
R01025726	34	67	100
R01066687	67	50	100
R01073358	83	100	100
R01298882	100	100	100

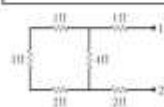
Summer 2013, Exam 3, QQ 1-3

#1. A 120-V power line is protected by a 15-A fuse. What is the maximum number of 120V, 500W light bulbs that can be operated at full brightness from this line?

A. 1  
B. 2  
C. 3  
D. 4  
E. 5

#2. The equivalent resistance between points 1 and 2 of the circuit shown is:

1. 3  
2. 4  
3. 5  
4. 6  
5. 7

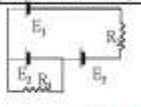


#3. A cylindrical copper rod has resistance  $R$ . It is reform to twice its original length with no change of volume. Its new resistance is:

A.  $R$   
B.  $2R$   
C.  $4R$   
D.  $8R$   
E.  $R/2$

Summer 2013, Exam 2, QQ 4-6


#4. The circuit parameters are as follows  $R_1 = 10 \Omega$ ,  $R_2 = 50 \Omega$ , and the ideal batteries of emfs  $E_1 = E_2 = E_3 = 1 \text{ V}$ . Find the currents in resistor  $R_2$ .



20 mA

#5. A uniform magnetic field is directed into the page. A charged particle, moving in the plane of the page, follows a clockwise spiral of decreasing radius as shown. A reasonable explanation is:

A. the charge is positive and slowing down  
B. the charge is negative and slowing down  
C. the charge is positive and speeding up  
D. the charge is negative and speeding up  
E. none of the above



#6. An ion with charge  $3.2 \times 10^{-19} \text{ C}$  is in a region where a uniform electric field of  $5 \times 10^6 \text{ V/m}$  is perpendicular to a uniform magnetic field of  $0.8 \text{ T}$ . If its acceleration is zero then its speed must be:

A. 0  
B. 16 m/s  
C. 0.4 cm/s  
D. 63 km/s  
E. Any value but 0