

EXAM2

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

Summer 2013, Exam 2, QQ 1-3		
<p>#1. If the electric field is in the positive x direction and has a magnitude given by $E=Cx^3$ where C is a constant, then the electric potential is given by:</p> <ul style="list-style-type: none"> • $2Cx$ • $-2Cx$ • $Cx^2/3$ • $-Cx^2/3$ • $-3Cx^3$ 	<p>#2. Eight identical spherical raindrops are each at a Potential V, relative to the potential far away. They coalesce to make one spherical raindrop whose potential is</p> <ol style="list-style-type: none"> 1. $8V$ 2. $2V$ 3. $2V$ 4. $4V$ 5. $8V$ 	<p>#3. A conducting sphere is charged until the electric potential just outside its surface is V and the field is E. The radius of the sphere is:</p> <ol style="list-style-type: none"> 1. VE 2. $(VE)^2$ 3. VE^2 4. VE 5. $-VR$

Summer 2013, Exam 2, QQ 4-6		
<p>#4. A capacitor charge Q triples as a result of filling the space between its plates with a dielectric. Choose the correct statement:</p> <ul style="list-style-type: none"> • The capacitor was disconnected from the battery in the process of filling • The capacitor was connected to the battery in the process of filling • The dielectric permittivity of the dielectric is 4 • The capacitor energy decreased • None of the above 	<p>#5. Two protons are fixed 2 mm apart. Another proton is shot from infinity and stops midway between the two. Approximately, what is its initial speed?</p> <ol style="list-style-type: none"> 1. 0 2. 0.6 cm/s 3. 20 m/s 4. 140 km/s 5. 1200000 km/s 	<p>#6. Two capacitors connected in series have the equivalent capacitance of 0.5 mF. However they have the equivalent capacitance of 2 mF when connected in parallel. What are the capacitances of these two capacitors?</p> <ol style="list-style-type: none"> 1. (1F, 1F) 2. (2mF, 2mF) 3. (1mF, 2mF) 4. (1mF, 1mF) 5. (0.5mF, 1mF)