1. The capacity of a parallel plate condenser is . When a glass plate is placed between the plates of the conductor, its potential becomes of the original value. The value of dielectric constant will be

 (a) 1.6 (b) 5

 (c) 8 (d) 40

1. A capacitor is charged by using a battery which is then disconnected. A dielectric slab is then slipped between the plates, which results in

 (a) Reduction of charge on the plates and increase of potential difference across the plates

 (b) Increase in the potential difference across the plate, reduction in stored energy, but no change in the charge on the plates

 (c) Decrease in the potential difference across the plates, reduction in the stored energy, but no change in the charge on the plates

 (d) None of the above

1. The energy of a charged capacitor is given by the expression (= charge on the conductor and *C* = its capacity)

 (a)  (b) 

 (c)  (d) 

1. The capacity of a condenser is  *farad* and its potential is. The energy released on discharging it fully will be

 (a)  (b) 

 (c)  (d) 

1. The insulated spheres of radii  and  having charges and  respectively are connected to each other. There is

 (a) No change in the energy of the system

 (b) An increase in the energy of the system

 (c) Always a decrease in the energy of the system

 (d) A decrease in the energy of the system unless 

1. Which one statement is correct ? A parallel plate air condenser is connected with a battery. Its charge, potential, electric field and energy are and respectively. In order to fill the complete space between the plates a dielectric slab is inserted, the battery is still connected. Now the corresponding values andare in relation with the initially stated as

 (a)  (b) 

 (c)  (d) 

1. In a charged capacitor, the energy resides

 (a) The positive charges

 (b) Both the positive and negative charges

 (c) The field between the plates

 (d) Around the edge of the capacitor plates

1. The energy stored in a condenser of capacity  which has been raised to a potential is given by

 (a)  (b) 

 (c)  (d) 

1. If two conducting spheres are separately charged and then brought in contact

 (a) The total energy of the two spheres is conserved

 (b) The total charge on the two spheres is conserved

 (c) Both the total energy and charge are conserved

 (d) The final potential is always the mean of the original potentials of the two spheres

1. Two insulated charged spheres of radii  and respectively and having an equal charge  are connected by a copper wire, then they are separated

 (a) Both the spheres will have the same charge 

 (b) Charge on the  sphere will be greater than that on the  sphere

 (c) Charge on the  sphere will be greater than that on the  sphere

 (d) Charge on each of the sphere will be 

1. Eight drops of mercury of equal radii possessing equal charges combine to form a big drop. Then the capacitance of bigger drop compared to each individual small drop is

 (a) 8 times (b) 4 times

 (c) 2 times (d) 32 times

1. A condenser of capacity is charged to . Its energy is equal to

 (a)  (b) 

 (c)  (d) 

1. The potential gradient at which the dielectric of a condenser just gets punctured is called

 (a) Dielectric constant (b) Dielectric strength

 (c) Dielectric resistance (d) Dielectric number

1. A parallel plate condenser has a capacitance  in air and when immersed in an oil. The dielectric constant  of the oil is

 (a) 0.45 (b) 0.55

 (c) 1.10 (d) 2.20

1. Separation between the plates of a parallel plate capacitor is and the area of each plate is . When a slab of material of dielectric constantand thickness  is introduced between the plates, its capacitance becomes

 (a)  (b) 

 (c)  (d) 

1. The capacity of parallel plate condenser depends on

 (a) The type of metal used

 (b) The thickness of plates

 (c) The potential applied across the plates

 (d) The separation between the plates

1. The energy of a charged capacitor resides in

 (a) The electric field only

 (b) The magnetic field only

 (c) Both the electric and magnetic field

 (d) Neither in electric nor magnetic field

1. No current flows between two charged bodies connected together when they have the same

 (a) Capacitance or  ratio (b) Charge

 (c) Resistance (d) Potential or ratio

1. The capacity of a parallel plate condenser is . Its capacity when the separation between the plates is halved will be

 (a)  (b) 

 (c)  (d) 

1. Eight small drops, each of radius  and having same charge are combined to form a big drop. The ratio between the potentials of the bigger drop and the smaller drop is

 (a) 8 : 1 (b) 4 : 1

 (c) 2 : 1 (d) 1 : 8

1. 1000 small water drops each of radius *r* and charge coalesce together to form one spherical drop. The potential of the big drop is larger than that of the smaller drop by a factor of

 (a) 1000 (b) 100

 (c) 10 (d) 1

1. A parallel plate condenser is immersed in an oil of dielectric constant 2. The field between the plates is

 (a) Increased proportional to 2

 (b) Decreased proportional to 

 (c) Increased proportional to 

 (d) Decreased proportional to 

1. If the dielectric constant and dielectric strength be denoted by and  respectively, then a material suitable for use as a dielectric in a capacitor must have

 (a) High and high  (b) High and low 

 (c) Low and low  (d) Low  and high 

1. When air in a capacitor is replaced by a medium of dielectric constant *K*, the capacity

 (a) Decreases *K* times (b) Increases *K* times

 (c) Increases times (d) Remains constant

1. 64 drops each having the capacity  and potential are combined to form a big drop. If the charge on the small drop is, then the charge on the big drop will be

 (a)  (b) 

 (c)  (d) 

1. The capacity of a parallel plate capacitor increases with the

 (a) Decrease of its area (b) Increase of its distance

 (c) Increase of its area (d) None of the above

1. The radius of two metallic spheres  and  are  and  respectively . They are connected by a thin wire and the system is given a certain charge. The charge will be greater

 (a) On the surface of the sphere 

 (b) On the surface of the sphere 

 (c) Equal on both

 (d) Zero on both

1. The capacity of a spherical conductor in MKS system is

 (a)  (b) 

 (c)  (d) 

1. Can a metal be used as a medium for dielectric

 (a) Yes (b) No

 (c) Depends on its shape (d) Depends on dielectric

1. Two identical capacitors are joined in parallel, charged to a potential *V* and then separated and then connected in series  the positive plate of one is connected to negative of the other

 (a) The charges on the free plates connected together are destroyed

 (b) The charges on the free plates are enhanced

 (c) The energy stored in the system increases

 (d) The potential difference in the free plates becomes 

1. The condensers of capacity and  are connected in parallel, then the equivalent capacitance is

 (a)  (b) 

 (c)  (d) 

1. Seven capacitors each of capacity  are to be so connected to have a total capacity . Which will be the necessary figure as shown

(a)

(b)

(c)

(d)

1. Four plates of equal area are separated by equal distances  and are arranged as shown in the figure. The equivalent capacity is

*A*

*B*

 (a)  (b) 

 (c)  (d) 

1. The capacitor of capacitance and are connected in series. A potential difference of  applied to the outer plates of the two capacitor system. Then the charge on each capacitor is numerically

 (a)  (b) 

 (c)  (d) 

1. A parallel plate capacitor with air as medium between the plates has a capacitance of . The area of capacitor is divided into two equal halves and filled with two media as shown in the figure having dielectric constant and . The capacitance of the system will now be

 (a) 

*k*1

*k*2

 (b) 

 (c) 

 (d) 

1. Three capacitors are connected to  source of  shown in the adjoining figure. If the charge accumulated on plates of and  are and respectively, then

 (a) 

2*μF*

*a b*

3*μF*

*c d*

4*μF*

*e f*

100 *Volts*

 (b) 

 (c) 

 (d) 

1.  identical condensers are joined in parallel and are charged to potential. Now they are separated and joined in series. Then the total energy and potential difference of the combination will be

 (a) Energy and potential difference remain same

 (b) Energy remains same and potential difference is 

 (c) Energy increases  times and potential difference is 

 (d) Energy increases  times and potential difference remains same

1. Three capacitors each of capacitance are connected in parallel. To this combination, a fourth capacitor of capacitance  is connected in series. The resultant capacitance of the system is

 (a)  (b) 

 (c)  (d) 

1. Five capacitors of capacity each are connected to a *d.c.* potential of  as shown in the adjoining figure. The equivalent capacitance between the points and will be equal to

100 *Volt*

*A*

*B*

10*μF*

10*μF*

10*μF*

10*μF*

10*μF*

 (a) 

 (b) 

 (c) 

 (d) 

1. Three capacitors of capacitances  and  are connected once in series and another time in parallel. The ratio of equivalent capacitance in the two cases  will be

 (a) 1 : 15 (b) 15 : 1

 (c) 1 : 1 (d) 1 : 3

1. Four condensers each of capacity  are connected as shown in figure. . The energy stored in the system is

*P*

4*μF*

4*μF*

4*μF*

4*μF*

*Q*

 (a) 

 (b) 

(c) 

(d) 

1. Two capacitors each of  capacitance are connected in parallel and are then charged by  *d.c.* supply. The total energy of their charges (in joules) is

 (a) 0.01 (b) 0.02

 (c) 0.04 (d) 0.06

1. In an adjoining figure are shown three capacitors , and  joined to a battery. The correct condition will be (Symbols have their usual meanings)

*V*3

*C*3

*Q*3

*Q*2

*C*2

*V*2

*V*1

*C*1

*Q*1

*V*

*+*

*–*

 (a)  and 

 (b) and

 (c)  and 

 (d)  and 

1. In the circuit diagram shown in the adjoining figure, the resultant capacitance between *P* and *Q* is

*P*

*Q*

20*μF*

12*μF*

2*μF*

3*μF*

 (a) 

 (b) 

 (c) 

 (d) 

1. Two condensers of capacity  and  respectively are connected in series. The combination is connected across a potential of. The ratio of energies stored by the condensers will be

 (a)  (b) 2

 (c)  (d) 4

1. The capacitor of capacitance  and are connected in series. A potential difference of  is applied to the outer plates of the two capacitor system. The potential difference across the plates of capacitor of  capacitance is

 (a)  (b) 

 (c)  (d) 

1. Two capacitances of capacity and  are connected in series and potential difference  is applied across it. Then the potential difference across will be

 (a)  (b) 

 (c)  (d) 

1. Three capacitances of capacity and  are connected in parallel. The total capacity will be

 (a)  (b) 

 (c)  (d) None of the above

1. Three capacitors of capacity  are connected in series. Their total capacity will be

 (a)  (b) 

 (c)  (d) None of these

1. Two capacitors of equal capacity are first connected in parallel and then in series. The ratio of the total capacities in the two cases will be

 (a) 2 : 1 (b) 1 : 2

 (c) 4 : 1 (d) 1 : 4

1. Two capacitors connected in parallel having the capacities and  are given  charge, which is distributed among them. The ratio of the charge on and  will be

 (a)  (b) 

 (c)  (d) 

1. Two capacitors of capacities  and  are charged to voltages  and  respectively. There will be no exchange of energy in connecting them in parallel, if

 (a)  (b) 

 (c)  (d) 

1. If three capacitors each of capacity are connected in such a way that the resultant capacity is, then

 (a) All the three are connected in series

 (b) All the three are connected in parallel

 (c) Two of them are in parallel and connected in series to the third

 (d) Two of them are in series and then connected in parallel to the third

1. Four capacitors of each of capacity are connected as shown in the adjoining figure. The ratio of equivalent capacitance between  and  and between  and  will be

*A*

*B*

*C*

 (a) 4 : 3

 (b) 3 : 4

 (c) 2 : 3

 (d) 3 : 2

1. The capacities of two conductors are and  and their respective potentials are and. If they are connected by a thin wire, then the loss of energy will be given by

 (a)  (b) 

 (c)  (d) 