APPENDIX : 11

CRITERION REFERENCED TEST (POST - TEST) IN XII STD PHYSICS FOR SIX MODULES OF THE CHAPTER ELECTROSTATICS WITH SCORING KEY

ELECTROSTATICS - MODULE : 1

Choose the correct answer among the four alternatives and write it in the question paper itself.

1) Electrostatics deals with the behaviour of ..... charges.

a) stationary b) moving c) moving and stationery d) none of the above.

2) Positive and negative charges ..... each other.

a) repel b) attract c) neither attract nor repel d) none of the above.

3) The electric charge 'e' in nature can be transfered in units of ..... magnitude only.

a) $\frac{1}{2}e$ b) 1e c) $\frac{1}{3}e$ d) $\frac{1}{4}e$

4) .....states that charges can neither be created nor be destroyed.

a) The law of conservation mass. b) The law of conservation of energy.

c) The law of conservation of electric charge. d) none of the above.

5) Example for conductor .....

a) ebonite b) graphite c) plastic d) glass

6) Bodies which do not allow electric charges to pass through are called .....

a) conductors b) Inslators c) semi conductors d) super conductors.

7) According to the Coulomb's inverse square law, the force between two point charges is directly proportional to the product of the charges and inversely proportional to .....

a) the distance between them b) the cube of the distance between them

c) the square of the distance between them

d) the fourth power of the distance between them.

8) The permitivitty of free space ε_o is given by.....

a) $8.85 \times 10^{-11}\ c^2\ N^{-1}\ m^{-2}$ c) $8.85 \times 10^{-12}\ c^2\ N^{-1}\ m^{-2}$

b) $8.85 \times 10^{+12}\ c^2\ N^{-1}\ m^{-2}$ d) $8.85 \times 10^{10}\ c^2\ N^{-1}\ m^{-2}$

9) The value of K = ...

a) $9 \times 10^{-9}\ N\ m^2\ c^{-2}$ b) $9 \times 10^{9}\ N\ m^2\ c^2$

c) $9 \times 10^{9}\ N\ m^{-2}\ c^{-2}$ d) $9 \times 10^{9}\ N\ m^2\ c^{-2}$

10) If the two charges are kept in medium other than vacuum, the force between them is .....

a) $F = \frac{1}{4\pi\varepsilon} \frac{q_1 q_2}{r^2}$ b) $F = \frac{1}{4\pi\varepsilon_o} \frac{q_1 q_2}{r^2}$

b) $F = \frac{1}{4\pi\varepsilon_o} \frac{q_1 q_2}{r^2}$ d) $F = 4\pi\varepsilon \frac{q_1 q_2}{r^2}$

11) What is the equation relating relative permittivity of the medium ε_r permittivity of the medium ε and permittivity of free space ε_o ?

a) $\varepsilon = \frac{\varepsilon_r}{\varepsilon_o}$ b) $\varepsilon_r = \frac{\varepsilon}{\varepsilon_o}$ c) $\varepsilon_o = \varepsilon\varepsilon_r$ b) $\varepsilon_r = \frac{\varepsilon_o}{\varepsilon}$

12) The value of ε_r for air will be .....

a) 0.5 b) 1.5 c) 0.55 d) 1

13) Find the value of repulsive force between two charges $q_1 = q_2 = 1$ Coulomb and seperated by a distance of 1m kept in air.

a) 9×10^{-9} N. b) 9.9×10^{-9} N. c) 9×10^{9} N. d) 99×10^{99} N.

14) The space around a charge in which its influence is felt is known as .....

a) magnetic field. b) electric field. c) Gravitational field d) none of the above.

15) The strength of electric field at any point inside the electric field region is defined as the force experienced by a ..... placed at that point.

a) unit positive charge b) unit negative charge

c) two units of positive charge d) two units of negative charge

16) If a charge of 10 Coulombs is placed at a point and a force of 2 newtons is experienced, then the electric field E = ...

a) 5 b) 20 c) 0.2 d) 0.02

17) If the dimension (size) of the charge or charged body is small in comparision with the distance of the point considered, then the charged body is refered as ..... .

a) spherical charge b) point charge

c) eliptical charge d) linear charge

18) The expression for electric field (E) at a point, considered at a distance r from the point charge kept in vaauum is given by .....

a) $F = \frac{1}{4\pi\varepsilon_o} \frac{q}{r^2}$ b) $E = \frac{1}{4\pi\varepsilon_o} \frac{q}{r}$

c) $E = \frac{1}{4\pi\varepsilon_o} \frac{r}{q}$ c) $E = \frac{1}{4\pi\varepsilon_o} \frac{r^2}{q}$

19) $+q$ coulomb + 1 coulomb

O •——————————• P

With reference to the above figure, when the positive charge is kept at O, the direction of electric field E at the point P is .....

a) out word b) inward

c) neither inward nor outward d) none of the above

20) Two dissimilar charges separated by a small distance constitute .....

a) a magnetic dipole b) an electric dipole

c) spin dipole moment d) none of the above

21) If two dissimilar charges of magnitude +2 coulombs and -2 coulombs are separated by a distance of 2 metres, then the electric dipole moment between them is .....

a) 16 c.m. b) 4 c.m. c) 8 c.m. d) 2 c.m.

SCORING KEY MODULE - 1

Q.No.	Correct responce	Q.No.	Correct responce	Q.No.	Correct responce
1	a	8	c	15	a
2	b	9	d	16	c
3	b	10	a	17	b
4	c	11	b	18	a
5	b	12	d	19	a
6	b	13	c	20	b
7	c	14	b	21	b

ELECTROSTATICS - MODUL : 2

Choose the correct answer among the four alternatives and write it in the question paper itself.

1) The path followed by ..... in an electric field is represented by lines of force.

   a) a unit positive charge b) a unit negative charge

   c) two units of positive charge d) two units of negative charge

2) The first property of electric lines of force :

   Lines of force start from positive charge and terminate at ..... charge.

   a) negative b) positive

   c) neither positive nor negative d) none of the above

3) The second property of electric lines of force :

   Lines of force .....

   a) will intersect b) never intersect

   c) occasionally intersect d) none of the above

4) The third property of electric lines of force :

   The ..... to the line of force at any point gives the direct of the electric field E at that point.

   a) radius b) diameter c) tangent d) perimeter

5) The fourth property of electric lines of force :

   The number of electric lines of force per unit are a at right angle to the lines is proportional to the magnitude of .....

   a) electromagnetic field b) electric field

   c) magnetic field d) none of the above

6) What will be the number of electric lines of force given by 6 units of positive charge based on fifth property of electric lines of force ?

   a) $\frac{1}{6} \times \frac{1}{\varepsilon_o}$ lines b) $\frac{1}{3} \times \frac{1}{\varepsilon_o}$ lines

   c) $\frac{1}{2} \times \frac{1}{\varepsilon_o}$ lines d) $6 \times \frac{1}{\varepsilon_o}$ lines

7) Electric potential at a point is defined as the amount of work done in bringing a unit positive charge from infinity to that point against the ..... electrical forces.

   a) attractive b) repulsive

   c) neither attractive nor repulsive d) none of the above

8) The Electric potential at a point near an isolated positive charge is .....

a) negative b) zero c) positive d) none of the above

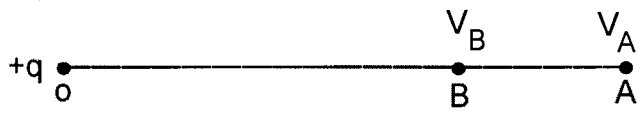
9) The electric potential at a point near an isolated negative charge is .....

a) positive b) large c) small d) negative

10) Electric potential difference between two points in an electric field is defined as the amount of work done in bringing a ..... from one point to the other against the electrical force of repulsion.

a) unit positive charge b) unit negative charge
c) two units of positive charge d) two units of negative charge

11)



With reference to the figure electric potential difference between two point A and B with unit is given by the relation.....

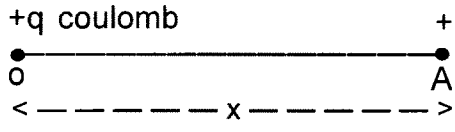
a) $W_{AB} = (V_A - V_B)$ watt b) $W_{AB} = (V_A - V_B)$ volt

c) $W_{AB} = (V_A - V_B)$ ampere d) $W_{AB} = (V_B - V_A)$ volt

12) If 10 joules of work is done in moving 1 coulomb of charge from one point to other against electrical forces, then the potential difference between two points is .....volts.

a) 100 b) 1000 c) 10000 d) 10

13)



With reference to the figure, the force experienced bya unit positive charge place at A i n a medium of permittivity ε_o is given as .....

a) $F = \frac{1}{4\pi\varepsilon_o} \frac{q}{x^2}$ b) $F = \frac{1}{4\pi\varepsilon_o} \frac{q}{x^2}$

c) $F = \frac{1}{4\pi\varepsilon_o} \times \frac{x^2}{q}$ d) $F = \frac{q}{x^2}$

14) What is the formula to find electric potential at a point, at a distance r from a point charge +q coulomb kept in vacuum of permittivity ε_o ?

a) $V = \frac{1}{4\pi\varepsilon_o} \frac{q}{r^2}$ b) $V = \frac{1}{4\pi\varepsilon_o} \frac{q}{r^3}$

c) $V = \frac{1}{4\pi\varepsilon_o} \frac{q}{r}$ d) $V = \frac{1}{4\pi\varepsilon_o} \frac{r}{q}$

15) What is the formula to find out the electric field intensity at a point at a distance r from a point charge +q kept in vacuum or free space of permittivity ε_o ?

a) $E = \frac{1}{4\pi\varepsilon_o} \frac{q}{r^2}$ b) $E = \frac{1}{4\pi\varepsilon_o} \frac{r^2}{q}$

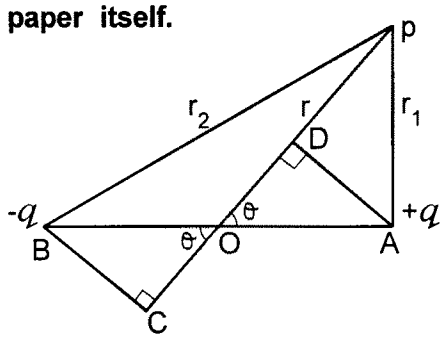
c) $E = \frac{1}{8\pi\varepsilon_o} \frac{q}{r^2}$ d) $E = \frac{1}{8\pi\varepsilon_o} \frac{r^2}{q}$

SCORING KEY MODULE - 2

Q.No.	Correct responce	Q.No.	Correct responce	Q.No.	Correct responce
1	a	8	c	15	a
2	a	9	d		
3	b	10	a		
4	c	11	d		
5	b	12	d		
6	d	13	a		
7	b	14	c		

ELECTROSTATICS - MODUL : 3

Choose the correct answer among the four alternatives and write it in the question paper itself.



AB = 2d

OA = OB = d

1) With reference to the above figure, The potential at any point P due to dipole of charge q is given by an expression .....

a) $v = \frac{q}{4\pi\varepsilon_o}\left[\frac{1}{r_2} - \frac{1}{r_1}\right]$ b) $v = \frac{q}{4\pi\varepsilon_o}\left[\frac{1}{r_1} - \frac{1}{r_2}\right]$

c) $v = \frac{q}{4\pi\varepsilon_o}\left[r_1 - r_2\right]$ d) $v = \frac{q}{4\pi\varepsilon_o}\left[r_2 - r_1\right]$

2) With reference to the figure in question number 1, the potential at P is given by the expression .....

a) $V = \frac{q}{4\pi\varepsilon_o}\left[\frac{2d\ \mathrm{Sin}\,\theta}{r^2 - d^2\cos\theta}\right]$ b) $V = \frac{q}{4\pi\varepsilon_o}\left[\frac{2d\ \cos\theta}{d^2 - r^2\cos^2\theta}\right]$

c) $V = \frac{q}{4\pi\varepsilon_o}\left[\frac{2d\ \cos\theta}{r^2 - d^2\cos^2\theta}\right]$ d) $V = \frac{q}{4\pi\varepsilon_o}\left[\frac{2d\ \cos\theta}{r^2 - d^2\cos^2\theta}\right]$

3) The expression for electric potential at any point due to an electric dipole moment P is given as .....

a) $V = \frac{P\cos\theta}{4\pi\varepsilon_o r^2}$ b) $V = \frac{P\,\mathrm{Sin}\,\theta}{4\pi\varepsilon_o r^2}$

c) $V = \frac{P\,\mathrm{Cos}^2\theta}{4\pi\varepsilon_o r}$ d) $V = \frac{P\,\mathrm{Sin}^2\theta}{4\pi\varepsilon_o r^2}$

4) The potential at the point lies on the axial line of the electric dipole on the side of the positive charge. q is given by the formula .....

a) $V = \frac{P}{4\pi\varepsilon_o r^2}$ b) $V = \frac{P}{4\pi\varepsilon_o r}$

c) $V = \frac{Pr}{4\pi\varepsilon_o}$ d) $V = \frac{P}{4\pi\varepsilon_o r^3}$

5) The potential at the point lies on the axial line of the electric dipole on the side of the negative charge q is given by the formula.

a) $V = \frac{P}{4\pi\varepsilon_o r^2}$ b) $V = \frac{-P}{4\pi\varepsilon_o r^2}$

c) $V = \frac{-P}{4\pi\varepsilon_o r}$ d) $V = \frac{P}{4\pi\varepsilon_o r}$

6) The potential at any point on the equatorial line of an electric dipole is .....

a) positive b) negative c) zero d) none of the above

7) The expression for torque acting on an electric dipole P placed in an uniform electric field E is given as .....

a) $\tau = P\ E\ \text{Cos}\ \theta$ b) $\tau = P\ E\ \tan\theta$

c) $\tau = P\ E\ \text{Cot}\ \theta$ d) $\tau = P\ E\ \text{Sin}\ \theta$

8) The expression to represent the electric potential energy (U) of the system of charges q_1 and q_2 kept in vaccuum of permittivity and separated by a distance d is given as .....

a) $U = \frac{1}{4\pi\varepsilon_o}\ \frac{d}{q_1 q_2}$ b) $U = \frac{1}{4\pi\varepsilon_o}\ \frac{q_1 q_2}{d}$

c) $U = \frac{1}{4\pi\varepsilon_o}\ \frac{q_1}{q_2 d}$ d) $U = \frac{1}{4\pi\varepsilon_o}\ \frac{q_2}{q_1 d}$

9) The formula for electric flux through the closed surface considered in an electric field E with its units is given by.

a) $\varphi = \oint \text{Eds Cos}\ \theta\ \text{Nm}^2\ c^{-1}$ b) $\varphi = \oint \text{Eds Sin}\ \theta\ \text{Nm}\ c^{-1}$

c) $\varphi = \oint \text{Eds tan}\ \theta\ \text{Nm}^2\ c^{-1}$ d) $\varphi = \oint \text{Eds Cot}\ \theta\ \text{N m}\ c^{-2}$

SCORING KEY MODULE - 3

Q.No.	Correct responce	Q.No.	Correct responce	Q.No.	Correct responce
1	b	4	a	7	d
2	c	5	b	8	b
3	a	6	c	9	a

ELECTROSTATICS - MODUL : 4

Choose the correct answer among the four alternatives and write it in the question paper itself.

1) Gauses law states that

"The total electric flux of the electric field E over any closed surface is equal to ..... times the total net charge q enclosed by the surface".

a) ε_o b) $\frac{1}{\varepsilon_o}$ c) $2\varepsilon_o$ d) $\frac{\varepsilon_o}{2}$

2) Gauss law tells that the flux through a closed surface S depends only on the value of the .....indide the surface and not on the location of the charge.

a) net area b) net surface c) net charge d) net flux.

3) The expression for electric field E due to an infinite plane sheet of charge density σ, kept in a medium of absolute permittivity ε_o is given as .....

a) $E = \frac{\varepsilon_o}{2\sigma}$ b) $E = \frac{2\varepsilon_o}{\sigma}$ c) $E = \frac{\sigma}{\varepsilon_o}$ d) $E = \frac{\sigma}{2\varepsilon_o}$

4) By Gauss theorem, the formula to find electric field E at a point inside the parallel sheets of charges $+\sigma$ and $-\sigma$ kept in a medium of absolute permittivity ε_o is given as .....

a) $E = \frac{\sigma}{\varepsilon_o}$ b) $E = \frac{\varepsilon_o}{\sigma}$ c) $E = \frac{2\sigma}{\varepsilon_o}$ d) $E = \frac{\varepsilon_o}{2\sigma}$

5) By Gauss theorem, the electric field outside the charged parallel sheets is .....

a) positive b) negative c) zero d) none of the above

6) It is possible to obtain charges without any contact with another charge. We call these as induced charges and the phenomenon of producing induced charge is known as ..... .

a) electromagnetic induction b) electrostatic induction

c) magnetic induction d) electric induction

7) When a positive charge A be brought near an insulated conductor BC, the end B will be charged negatively and the end C will be changed positivily. If A is removed, the charges at B and C ..... .

a) appear b) disappear c) appear and disappear d) none of the above

8) If even after removing positive charge A from the bodies B and C and if the induced charges on B and C are remaining then this method is known as charging a body ..... .

a) permanently b) temperarily

c) permanently as well as temperarily d) none of the above

9) In the second method of charging a body permanently, the insulated conductor BC is charged .....on removing a positively charged body A and earth connection.

a) negatively b) positively c) positively and negatively d) none of the above

10) Electrophorus is a device for obtaining large quantity of electric charge by the phenomenon of ..... .

a) conduction b) induction c) reduction d) oxidation

11) In the Electrophorus, when brass disc B is placed on negatively charged ebonite disc A,..... charge is induced on upper surface S_2 of B.

a) positive b) negative c) zero d) none o f the above

12) In the Electrophorus, when the disc B is earthed ..... charges go to earth but positive charges will remain on B itself.

a) positive b) negative c) positive and negative d) none of the above

13) In the Electrophorus, when the disc B is lifted away from the disc A and simultaneously earth connection is removed, the disc B will carry positive charge and the negative charge on A remains .....

a) undiminished b) diminished

c) diminished and undiminished d) none of the above

14) In the Electrophorus, when the disc B is touched with the metal body, ... will come from the metal body and these will neutralise with the positive charge present on the disc B.

a) protons b) neutrons c) electrons d) none of the above

SCORING KEY MODULE - 4

Q.No.	Correct responce	Q.No.	Correct responce	Q.No.	Correct responce
1	b	6	b	11	b
2	c	7	b	12	b
3	d	8	a	13	a
4	a	9	a	14	c
5	c	10	b		

ELECTROSTATICS - MODUL : 5

Choose the correct answer among the four alternatives and write it in the question paper itself.

1) Charges are distributed over the surface ..... on a conductor (sphere) possesing regular shape.

   (a) uniformly (b) irregularly (c) discretely (d) none of the above

2) The charge accumulates to a maximum at the pointed end where the curvature is .....

   (a) lessor (b) greater (c) very less (d) none of the above

3) When a metal circular disc is charged, the ..... accumulation at the eduges will be more, since the curvature is greater at the edges.

   a) current b) potential difference c) charge d) none of the above

4) As a general rule, the greater the curvature at any point, ...is the surface charge density.

   (a) lessor (b) greater (c) very less (d) none of the above

5) The distribution of charge on a conductor depends not only upon the .....of the conductor but also on the ..... of other conductors near the charged conductor.

   (a) shape, proximity (b) size, proximity (c) proximity, shape (d) proximity, size

6) With reference to the diagram of action of points, the radins curvature at B is smaller than at A and hence the surface charge density at A is ..... than at B.

   (a) greater (b) lessor (c) smaller (d) none of the above

7) With reference to the diagram of action of points, the radius of curvature is minimum at the sharp end C. So the concentration of charge at C is .....

   (a) minimum (b) very minimum (c) maximum (d) none of the above

13) In the van de Graaff generator, the metal comb C with sharp points is connected to the ..... of the battery.

(a) positive (b) negative (c) positive and negative (d) none of the above

14) In van de Graaff generator, the concentration of the ..... applied to the comb C is on the sharp points of the comb, the air molecules that come in contact with the sharp points of C acquire ..... charge and are repulled towards the belt.

(a) current, negative (b) charge, positive (c) current, positive (d) charge, negative

15) In the van de Graaff generator, the belt acquires the positive charge and when the belt reaches the comb D, as a result of ..... the comb acquires negative charge and the sphere acquires ..... charge.

(a) induction, positive (b) conduction, positive

(c) induction, negative (d) conduction, negative

16) In van de Graaff generator, the acquired positive charge by is distributed on the ..... of the sphere. As the belt rotates, more and more of the ..... is accumulated on the outer surface of the sphere.

(a) inner surface, positive charge (b) inner surface, negative charge

(c) outer surface, positive charge (d) outer surface, negative charge

17) In the van de Graaff generator, the positive charge on the belt will get neutralised by the concentrated ..... on the sharp points of the comb D by the action of points and hence the desending belt will be left .....

(a) positive charge, charged (b) negative charge, uncharged

(c) negative charge, charged (d) positive charge, uncharged

18) In the van de Graaff generator, the potential is usually applied to the comb C by means of a ..... When the potential applied is of the order of 1000 volts, potential as high as ..... is obtained.

(a) motor, 6×10^5 volts (b) generator, 6×10^6 volts

(c) dynamo, 6×10^5 volts (d) dynamo, 6×10^5 volts

19) High potentials obtained in the van de Graaff generator are used for accelerating ..... particles which can hit the target nuclei to produce ..... reactions.

(a) neutral, nuclear (b) uncharged, atomic

(c) charged, atomic (d) charged, nuclear

SCORING KEY MODULE - 5

Q.No.	Correct responce	Q.No.	Correct responce	Q.No.	Correct responce
1	a	8	a	15	a
2	b	9	a	16	c
3	c	10	d	17	b
4	b	11	a	18	c
5	a	12	c	19	d
6	b	13	a		
7	c	14	b		

ELECTROSTATICS - MODUL : 6

Choose the correct answer from the four alternative and write it in the question paper itself.

1) If Q is the charge given to a conductor and v is the potential developed on the conductor then the formula to find the capacitance of the conductor is given as .....

(a) $C = \frac{Q}{V}$ (b) $C = \frac{V}{Q}$ (c) $C = QV$ (d) none of the above

2) The capacitance of a conductor is independent of charge given to the conductor but it depends on the ..... and ..... of the conductor.

(a) area and shape (b) size and shape

(c) volume and size (d) length and breath

3) A conductor has a capacitance of ....., if a charge of 2 coulomb given to it raises its potential by 2 volts.

a) 2 farads b) 4 farads c) 6 farads d) 1 farads

4) The practical units of capacitance are ..... .

(a) microfarad and picofarad (b) coulomb and volt

(c) ampere and watt (d) none of the above

5) The relation between micro farad μF and farad F is given as .....

(a) $1\,\mu F = 10^{6}\,F$ (b) $1\,\mu F = 10^{-6}\,F$

(c) $1\,\mu F = 10^{12}\,F$ (d) $1\,\mu F = 10^{-12}\,F$

6) The relation between pico farad PF and farad F is given as .....

(a) $1PF = 10^{-12}F$ (b) $1PF = 10^{12}F$ (c) $1PF = 10^{-6}F$ (d) $1PF = 10^{6}F$

7) ..... is a device for storing electric charge.

(a) conductor (b) capacitor (c) generator (d) voltmeter

8) When only those another insulated metal plate B is brought near a positive charged insulated metallic plate A, negative charge is induced at the side of B which is nearer to A. At the same time an equal amount of ..... is induced on the other side of B.

(a) negative charge (b) positive charge
(c) zero charge (d) none of the above

9) When the negative charge on the plate B is nearer to the plate A than the positive charge on B, the potential of A is decreased. So the capacitance of the plate A is ..... as per the relation $C = \frac{Q}{V}$.

(a) decreased (b) increased

(c) decreased as well as increased (d) none of the above

10) The potential of A is decreased further by removing positive charge on B by connecting B to earth to increase the ..... of A considerably.

(a) capacitance (b) conductance

(c) capacitance and conductance (d) none of the above

11) When +q charge is given to the plate P of the parallel plate capacitor, what type of charge will be induced at the upper surface of the plate Q ?

(a) -q (b) +q (c) +2q (d) +4q

12) In the parallel plate capacitor, the electric lines of forces starting from the plate A and ending at the plate Q are ..... each other and ..... to the plates.

(a) Perpendicular, parallel (b) parallel, parallel

(c) perpendicular, perpendicular (d) parallel, perpendicular

13) The electric field at a point between two plates of parallel plate capacitor is .....

(a) $E = \frac{\sigma}{A}$ (b) $E = \frac{\sigma}{q}$ (c) $E = \frac{\sigma}{\varepsilon_0}$ (b) $E = \frac{\varepsilon_0}{\sigma}$

14) The potential difference between P and Q of the parallel plate capacitor is given by the expression as .....

(a) $V = \frac{\sigma d}{\varepsilon_o}$ (b) $E = \frac{\sigma}{d\varepsilon_o}$ (c) $E = \frac{d}{\sigma \varepsilon_o}$ (b) $V = \frac{\varepsilon_o}{\sigma d}$

15) The expression to find the capacitance C of the parallel plate capacitor of plate area A and separated by a distance d and the space between the plates filled with free space of permittivity ε_o is given as .....

(a) $V = \frac{\varepsilon_o d}{A}$ (b) $C = \frac{A}{\varepsilon_o d}$ (c) $E = \frac{\varepsilon_o A}{d}$ (b) $c = \frac{d}{\varepsilon_o A}$

16) The capacitance of a parallel plate capacitor ..... if a dielectric say mica or oil is placed between the plates.

(a) increases (b) decreases

(c) increases as well as decreases (d) none of the above

17) The Electric field at any point in air space between the plates of parallel plate capacitor is E = ... and the electric field at any point in the dioelectric slab is

E^1 = ...

(a) $E = \frac{\sigma}{\varepsilon_o}$; $E^1 = \frac{\sigma}{\varepsilon_o \varepsilon_r}$ (b) $E = \frac{\varepsilon_o}{\sigma}$; $E^1 = \frac{\varepsilon_o \varepsilon_r}{\sigma}$

(c) $E = \varepsilon_o \sigma$; $E^1 = \varepsilon_o \varepsilon_r \sigma$ (b) None of the above

18) The expression for the capacitance of parallel plate capacitar with a dielectric slab of thickness t and relative permittivity ε_r is given as .....

(a) $C = \frac{\varepsilon_o A}{(d-t) + \frac{t}{\varepsilon_r}}$ (b) $C = \frac{\varepsilon_r A}{(d-t) + \frac{t}{\varepsilon_o}}$

(c) $C = \frac{\varepsilon_o \varepsilon_r A}{d}$ (d) $C = \frac{\varepsilon_r t}{(d-t)}$

19) When a dielectric is introduced in the parallel plate capacitor, the capacitance of this capacitor is .....

(a) decreased (b) increased

(c) neither increased nor decreased (d) none of the above

20) The expression for the effective capacitance C_s of the capacitors C_1, C_2 & C_3 connected in series is given as .....

(a) $C_S = C_1 + C_2 + C_3$ (b) $\frac{1}{C_S} = \frac{1}{C1} + \frac{1}{C_2} + \frac{1}{C_3}$

(c) $C_s = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$ (d) $\frac{1}{C_S} = C_1 + C_2 + C_3$

21) Find the effective capacitance when three capacitors of values 2 μF, 3 μF and 1 μF are connected in series.....

(a) $\frac{1}{2}$ μF (b) 2 μF (c) $\frac{1}{5}$ μF (d) 5 μF

22) The expression for the effective capatianed C_p of the capacitors C_1, C_2 & C_3 connected in parallel is given as .....

(a) $C_p = C_1 + C_2 + C_3$ (b) $C_p = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$

(c) $\frac{1}{C_P} = C_1 + C_2 + C_3$ (d) $\frac{1}{C_P} = C_1 C_2 C_3$

23) Find the effective capacitance of capacitors of values 3 μF, 5 μF & 7 μF are connected in paralled.....

(a) 10 μF (b) 20 μF (c) 15 μF (d) 15PF

SCORING KEY MODULE - 6

Q.No.	Correct responce	Q.No.	Correct responce	Q.No.	Correct responce
1	a	9	b	17	a
2	b	10	a	18	a
3	d	11	a	19	b
4	a	12	d	20	b
5	b	13	c	21	a
6	a	14	a	22	a
7	b	15	c	23	c
8	b	16	a		