Kendriya Vidyalaya Sangathan

Multiple choice questions for class X in Physics

Prepared under the guidance of

Ms. Usha A Iyer

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CHAPTER10

Light – Reflection & Refraction

Choose the correct answer from the following.

1. Coin placed in a bowl when seen from a place just disappears. When water is poured into the bowl without disturbing the coin , the coin
   a. Will not be seen
   b. Appears above the water surface
   c. Becomes visible again
   d. Appears very much deep inside the water

2. Nature of the image formed by a convex mirror is
   a. Real, inverted, diminished
   b. Virtual, erect, diminished
   c. Real , inverted , enlarged
   d. Virtual, erect, enlarged

3. The property of a mirror used in burning a paper is
   a. Rays from an object placed at a large distance in a concave mirror after reflection forms the image at the Focus
   b. Rays from an object placed at Focus after reflection in a concave mirror forms the image at a very large distance.
   c. Rays from an object placed at a large distance in a convex mirror after reflection forms the image at the Focus
   d. Rays from an object placed between F and 2F in a concave mirror after reflection forms the image beyond the Focus

4. The focal length of a concave mirror is 10cm. The position of the object that is useful for getting an enlarged image which can be caught on a screen is
   a. Placed at a distance of 5 cm. from the pole of the mirror
   b Placed at a distance of 35 cmfrom the pole of the mirror
   c. Placed at a distance of 15 cmfrom the pole of the mirror
   d. Placed at a distance of 4. 5 cmfrom the pole of the mirror

5. The power of a lens is -3.5D. The lens is
   a. Convex
   B Plano-convex
   c. concave
   d. Plano-concave

6. Formula to find the refractive index of a medium is
   a. n=speed of light in the medium /speed of light in air
   b. n=1 /speed of light in air
   c. n=speed of light in the air/speed of light in the medium
   d. n=1 /speed of light in the medium

7. In case of refraction through a glass slab
   a. Incident ray is parallel to the refracted ray
   c. Angle of incidence is equal to the angle of refraction

b. Incident ray is parallel to the emergent ray

d. Angle of refraction is equal to the angle of emergence

8. Mirror that can be chosen to view a tall building in a small mirror is
   a. Plane mirror
   b. Concave mirror
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9. Mirror formula is
   a. 1/v-1/u =1/f
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   c. 1/v+1/u =1/f
   d. M=h/h'

10. The mirror used by ENT specialists is
   a. Plane mirror
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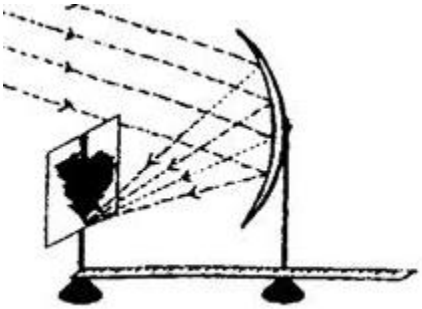
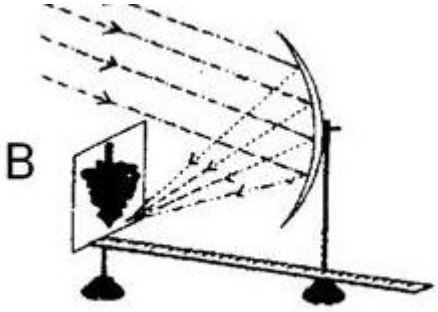
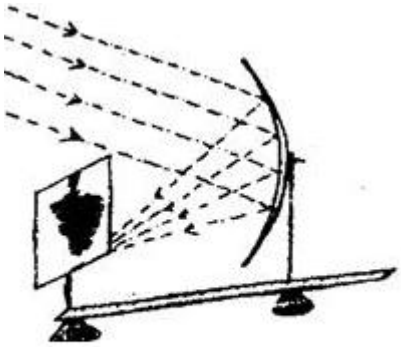
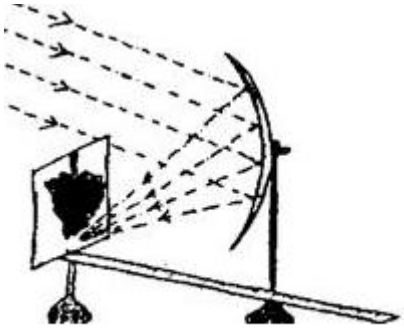
11 11 Four students A, B, C and D carried out the experiment of finding out focal length

a 

c 

b 

d 

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a angle of incidence
b angle of refraction
c both
d none

CHAPTER11

The Human Eye and theColourful World

1. The ability of the eye to adjust its focal length according to the distance of the object and intensity of light falling on it is called

a. Power of adjustment of the eye
b. Power of accommodation of the eye
c. Power of enabling of the eye
d. Power of observation of the eye

2. The value of least distance of distinct vision for a normal human eye is

a. 35cm
b. 25cm
c. 45cm
d. 70cm

3. The defect of vision in which a person is able to see nearby objects clearly, but not far objects is called

a. Long sightedness or Hypermetropia
b. Short sightedness or myopia
c. cataract
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7. The defect caused by the weakening of ciliary muscles is

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8. Splitting of white light into seven colours is called

a. Refraction
b. Reflection
c. Dispersion
d. Total internal reflection

9. A rainbow is always formed in a direction

a. Opposite to the sun
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10. Twinkling of stars is due to

a. Atmospheric refraction of star light
b Atmospheric dispersion of star light
c. Atmospheric reflection of star light
d. Atmospheric refraction of sun light

11 The image formed on the retina of the human eye is:

a Virtual and erect
b real and inverted
c virtual and inverted
d real and erect

12 The persistence of image for normal human eye is

a (1/10) of a second
b (1/16) of a second
c (1/6) of a second
d (1/18) of a second

13 Which part of the eye refracts light entering the eye from external objects?

a Lens
b cornea
c iris
d pupil

14 The colour of the sky is blue during the day time and red during sunset and black at night due to:

a Scattering of light
b Atmospheric refraction
c Small particles present in the atmosphere
d All of the above

15 The phenomenon responsible for working of human eye is

a Refraction
b reflection
c Persistence of vision
d power of accommodation

CHAPTER 12

Electricity

1. 30 electrons are flowing through a electric wire in a time of 3sec. Then the amount of current flowing through the wire is

   a. 1.6×10^{-18}A
   c. 4.8×10^{-19} A
   b. 9×10^{-18}A
   d. 9×10^{-19} A

2. A current of 0.5A is drawn by a filament of an electric bulb for 10 minutes. The amount of electric charge flowing through the bulb is

   a. 400C
   c. 300C
   b. 500C
   d. 600c

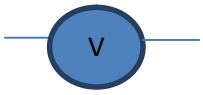
3. Current flows through a wire only when there is _____between the ends of the wire

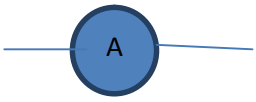
   a. Potential difference
   c. Work is done in moving a charge
   b. Potential difference at one end is more than at the other end
   d. All of the above

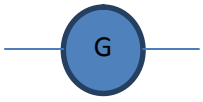
4. The SI unit of Potential difference is

   a. Volt
   c. JC^{-1}
   B $JA^{-1}s^{-1}$
   d. All of the above

5. The symbol used for denoting battery in a circuit is

   a. 
   c. 

   B 

   d. 

6. The amount of work done in moving a charge of 2C across two points having a potential difference of 24 V is

   a. 50J
   c. 24 J
   b. 48J
   d. 54J

7. The resistance of the wire when the length of the wire increases two times

   a. Becomes 2 times
   c. Becomes 3 times
   b. Becomes 6 times
   d. Becomes 4 times

8. Resistance of the wire is given by

a. R= V/I
c. R= I/V
b. R= IV
d. R= I^2V

9. The resultant resistance when three resistances 2ohms, 4ohms, 5ohms , when connected in series is
a. 12 ohms
c. 11ohms
b. 13 ohms
d. 15 ohms

10. Potential difference in a circuit in which components are connected in series
a. Remains the same across each component
c. Gets divided across each component
b. Gets distributed equally
d. Potential difference does not appear

11 The resultant value of resistances each of value r ohms when connected in parallel is x, when these resistances are connected in series the resultant resistance is :

a nx
c x/n
b n^2x
d x/n^2

12 Electric fuse is connected with:
a Live wire
c earthing
b neutral wire
d parallel to the line wire

13 To determine the equivalent resistance of two resistors, when connected in series, the correct way of connecting ammeter and voltmeter in the circuit is
a Both ammeter and voltmeter in series
c ammeter in parallel and voltmeter in series
b Both ammeter and voltmeter in parallel
d ammeter in series and voltmeter in parallel

14 While performing the experiment to study the dependence of current on potential difference ,if the circuit used to measure the current and voltage is kept in on position for a longer time ,then
a Voltmeter reading will change
c The resistor will get heated up changing the value of "R"
b Ammeter reading will change
d All of the above

15 In a voltmeter there are 20 divisions between 0 to 0.5 the least count of voltmeter is

a 0.0020
c 0.050
b 0.025
d 0.250

16 Student sets- up an electric circuit for the verification of Ohm's law. He observes that voltmeter reading gets in reversed direction. The student should

a Get the voltmeter replaced

b decrease resistance with the help of rheostat

c Reverse connection of voltmeter

d Connect voltmeter in series

CHAPTER 13

Magnetic Effects of Electric Current

1. SI unit of magnetic field strength is
   a. Oersted
   b. Ampere
   c. Volt
   d. Ohm

2. Inside the magnet the field lines run
   a. From south to north
   b. Away from north pole
   c. From north to south
   d. Away from the south pole

3. The magnetic field strength of a solenoid can be increased by inserting
   a. A wooden piece into it
   b. An iron piece into it
   c. A glass piece into it
   d. Paper roll into it

4. Strength of the magnetic field at a point in the space surrounding the magnet is measured by
   a. Thickness of the magnet
   B The resistance of it
   c. The number of lines crossing a given point
   d. Length of the magnet

5. The magnetic field inside the solenoid is
   a. Non uniform
   B Variable
   c. same at all points
   d. zero

6. An electron enters a magnetic field at right angles to it. The direction of force acting on the electron will be
   a. To the right
   b. Out of the page
   c. To the left
   d. Into the page

7. At the time of short circuit , the current in the circuit

a. Reduces instantaneously
b. Increases heavily
c. Does not change
d. Vary continuously

8. Device used to test whether the current is flowing in a conductor or not is
a. Ammeter
b. Voltmeter
c. Galvanometer
d. Battery

9. The process of Inducing current in a coil of wire by placing it in a region of changing magnetic field is
a. Electrical effect
b. Heating effect of current
c. Magnetic effect of current
d. Electromagnetic induction

10. The frequency of power supply used in India is
a. 70Hz
b. 50Hz
c. 60 Hz
d. 30Hz

11 Which of the following property of proton will change while it moves freely in a magnetic field
a Mass
b speed
c velocity
d momentum

12 Which one is correct among the following?
a Red insulated wire is called live wire
b Black insulated wire is called neutral wire
c Green insulated wire is called earthing
d All of the above

13 The magnetic field lines inside a solenoid is in the form of :
a Curved line
b circular lines
c Zig -zag lines
d parallel straight lines

14 The core of electromagnet is:
a Soft iron
b steel
c magnesium
d copper

CHAPTER 14

Sources ofEnergy

1. Factors which decide whether the given fuel is a good fuel are
   a. Heat it releases on burning
   b. Availability of the fuel
   c. Smoke produced by it on heating
   d. All of the above

2. In case of Thermal power plant
   a. Electrical energy is converted into mechanical energy
   b. Heat energy is converted into sound energy
   c. Heat energy is converted into electrical energy
   d. Mechanical energy is converted into electrical energy

3. Tehri Dam is constructed on the river
   a. Narmada
   b. Yamuna
   c. Ganga
   d. Mahanadi

4. The largest wind energy farm is established in
   a. Chennai
   b Kanyakumari
   c. Madurai
   d. Kalpakkam

5. The value of solar constant is
   a. $1.8kW/m^2$
   B $1.6kW/m^2$
   c. $1.4kW/m^2$
   d. $1.2kW/m^2$

6. The device which converts solar energy into electricity is
   a. Solar cell
   b. Electric motor
   c. Generator
   d. Solar cooker

7. More amount of heat energy can be produced in a solar cooker by using
   a. A plane mirror
   b. A convex mirror
   c. A concave mirror
   d. A glass plate

8. In a nuclear fission reaction the mass of the original nucleus is
   a. Just little more than the sum of the masses of the individual products
   b. Just equal to the sum of the masses of the individual products
   c. Just little lesser than the sum of the masses of the individual products
   d. not comparable with individual masses of the products

9. The working of atom bomb is based on the principle of
   a. Release of energy in Nuclear fusion
   b. Conversion of mechanical energy into electrical energy
   c. Release of energy in Nuclear fission
   d. Conversion of wave l energy into electrical energy

10. The energy from the hot water springs of the underground used to produce electrical energy that is Geo-thermal energy is operational in
   a. India
   b. New Zealand
   c. Africa
   d. Syria

11 What is the ultimate source of energy?
   a Water
   b sun
   c uranium
   d fossil fuel

12 Tidal energy is harnessed by constructing
   a Bridge
   b dam
   c pipe
   d road

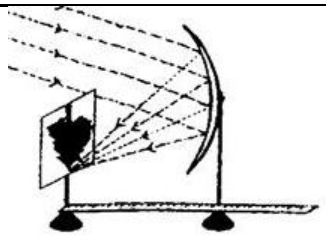
13 The energy possessed by huge waves needed to generate electricity is :

   a Solar energy
   b Kinetic energy
   c potential energy
   d heat energy

14 The most common material used for making solar cell is
   a Silicon
   b magnalium
   c bronze
   d aluminium

Answer –Key(PHYSICS-X)

Chapter-10			Chapter-11		
Q.No	option	Correct Answer	Q.No	option	Correct Answer
1	c	Becomes visible again	1	b	Power of accommodation of the eye
2	b	Virtual, erect, diminished	2	b	25cm
3	a	Rays from an object placed at a large distance in a concave mirror after reflection forms the image at the Focus	3	b	Short sightedness or myopia
4	c	Placed at a distance of 15 cm from the pole of the mirror	4	a	Long sightedness or Hypermetropia
5	c	concave	5	c	Concave lens

6	c	n=speed of light in the air/speed of light in the medium	6	a	Convex lens
7	b	Incident ray is parallel to the emergent ray	7	c	Presbyopia
8	c	Convex mirror	8	c	Dispersion
9	c	1/v+1/u =1/f	9	a	Opposite to the sun
10	b	Concave mirror	10	a	Atmospheric refraction of star light
11	a		11	b	real and inverted
12	b	away from the screen	12	b	(1/16) of a second
13	d	infinity	13	a	Lens
14	a	Away from the lens	14	d	All of the above
15	b	angle of refraction	15	a	Refraction

Chapter-12		
Q.No	option	Correct Answer
1	a	1.6 X 10^{-18}A
2	c	300C
3	d	All of the above
4	d	All of the above
5	a	
6	b	48J
7	d	Becomes 4 times
8	a	R= V/I
9	c	11ohms
10	c	Gets divided across each component
11	c	n^2x
12	d	parallel to the line wire
13	d	ammeter in series and voltmeter in parallel
14	d	All of the above
15	b	0.025
16	c	Reverse connection of voltmeter

Chapter-13			Chapter-14		
Q.No	option	Correct Answer	Q.No	option	Correct Answer
1	a	Oersted	1	d	All of the above
2	a	From south to north	2	c	Heat energy is converted into electrical energy
3	b	An iron piece into it	3	c	Ganga
4	c	The number of lines crossing a given point	4	b	Kanyakumari
5	c	same at all points	5	c	$1.4kW/m^2$
6	d	Into the page	6	a	Solar cell
7	b	Increases heavily	7	c	A concave mirror
8	c	Galvanometer	8	a	Just little more than the sum of the masses of the individual products
9	c	Electromagnetic induction	9	c	Release of energy in Nuclear fission
10	b	50Hz	10	b	New Zealand
11	c,&d	Velocity ,&momentum	11	b	sun
12	d	All of the above	12	b	dam
13	d	parallel straight lines	13	b	Kinetic energy
14	a	Soft iron	14	a	Silicon

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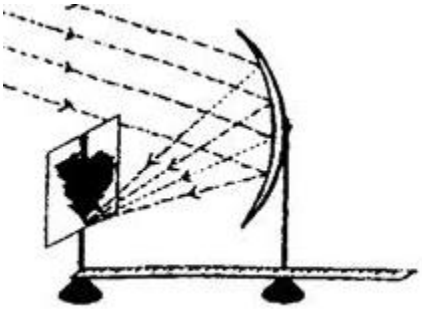
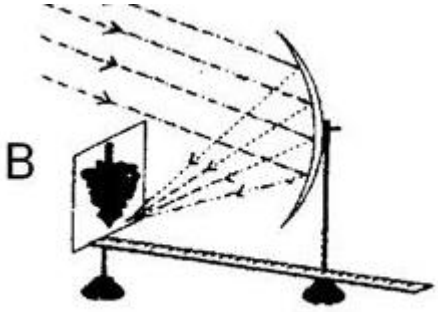
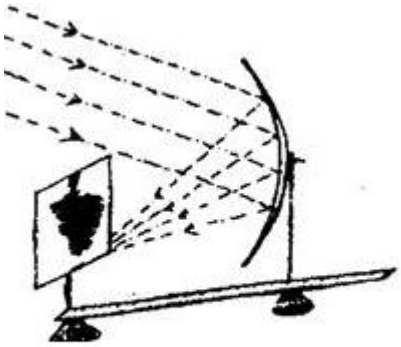
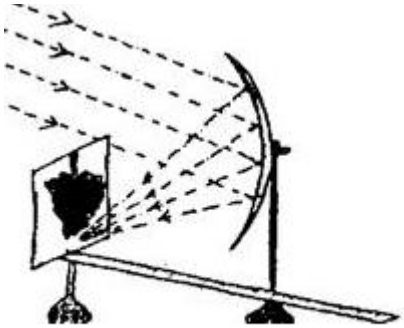
a 

c 

b 

d 

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c virtual and inverted
d real and erect

12 The persistence of image for normal human eye is

a (1/10) of a second
b (1/16) of a second
c (1/6) of a second
d (1/18) of a second

13 Which part of the eye refracts light entering the eye from external objects?

a Lens
b cornea
c iris
d pupil

14 The colour of the sky is blue during the day time and red during sunset and black at night due to:

a Scattering of light
b Atmospheric refraction
c Small particles present in the atmosphere
d All of the above

15 The phenomenon responsible for working of human eye is

a Refraction
b reflection
c Persistence of vision
d power of accommodation

CHAPTER 12

Electricity

1. 30 electrons are flowing through a electric wire in a time of 3sec. Then the amount of current flowing through the wire is

   a. 1.6×10^{-18}A
   c. 4.8×10^{-19} A
   b. 9×10^{-18}A
   d. 9×10^{-19} A

2. A current of 0.5A is drawn by a filament of an electric bulb for 10 minutes. The amount of electric charge flowing through the bulb is

   a. 400C
   c. 300C
   b. 500C
   d. 600c

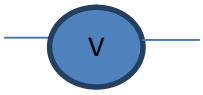
3. Current flows through a wire only when there is _____between the ends of the wire

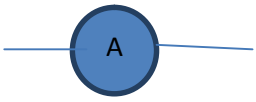
   a. Potential difference
   c. Work is done in moving a charge
   b. Potential difference at one end is more than at the other end
   d. All of the above

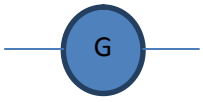
4. The SI unit of Potential difference is

   a. Volt
   c. JC^{-1}
   B $JA^{-1}s^{-1}$
   d. All of the above

5. The symbol used for denoting battery in a circuit is

   a. 
   c. 

   B 

   d. 

6. The amount of work done in moving a charge of 2C across two points having a potential difference of 24 V is

   a. 50J
   c. 24 J
   b. 48J
   d. 54J

7. The resistance of the wire when the length of the wire increases two times

   a. Becomes 2 times
   c. Becomes 3 times
   b. Becomes 6 times
   d. Becomes 4 times

8. Resistance of the wire is given by

a. R= V/I
c. R= I/V
b. R= IV
d. R= I^2V

9. The resultant resistance when three resistances 2ohms, 4ohms, 5ohms , when connected in series is
a. 12 ohms
c. 11ohms
b. 13 ohms
d. 15 ohms

10. Potential difference in a circuit in which components are connected in series
a. Remains the same across each component
c. Gets divided across each component
b. Gets distributed equally
d. Potential difference does not appear

11 The resultant value of resistances each of value r ohms when connected in parallel is x, when these resistances are connected in series the resultant resistance is :

a nx
c x/n
b n^2x
d x/n^2

12 Electric fuse is connected with:
a Live wire
c earthing
b neutral wire
d parallel to the line wire

13 To determine the equivalent resistance of two resistors, when connected in series, the correct way of connecting ammeter and voltmeter in the circuit is
a Both ammeter and voltmeter in series
c ammeter in parallel and voltmeter in series
b Both ammeter and voltmeter in parallel
d ammeter in series and voltmeter in parallel

14 While performing the experiment to study the dependence of current on potential difference ,if the circuit used to measure the current and voltage is kept in on position for a longer time ,then
a Voltmeter reading will change
c The resistor will get heated up changing the value of "R"
b Ammeter reading will change
d All of the above

15 In a voltmeter there are 20 divisions between 0 to 0.5 the least count of voltmeter is

a 0.0020
c 0.050
b 0.025
d 0.250

16 Student sets- up an electric circuit for the verification of Ohm's law. He observes that voltmeter reading gets in reversed direction. The student should

a Get the voltmeter replaced

b decrease resistance with the help of rheostat

c Reverse connection of voltmeter

d Connect voltmeter in series

CHAPTER 13

Magnetic Effects of Electric Current

1. SI unit of magnetic field strength is
   a. Oersted
   b. Ampere
   c. Volt
   d. Ohm

2. Inside the magnet the field lines run
   a. From south to north
   b. Away from north pole
   c. From north to south
   d. Away from the south pole

3. The magnetic field strength of a solenoid can be increased by inserting
   a. A wooden piece into it
   b. An iron piece into it
   c. A glass piece into it
   d. Paper roll into it

4. Strength of the magnetic field at a point in the space surrounding the magnet is measured by
   a. Thickness of the magnet
   B The resistance of it
   c. The number of lines crossing a given point
   d. Length of the magnet

5. The magnetic field inside the solenoid is
   a. Non uniform
   B Variable
   c. same at all points
   d. zero

6. An electron enters a magnetic field at right angles to it. The direction of force acting on the electron will be
   a. To the right
   b. Out of the page
   c. To the left
   d. Into the page

7. At the time of short circuit , the current in the circuit

a. Reduces instantaneously
b. Increases heavily
c. Does not change
d. Vary continuously

8. Device used to test whether the current is flowing in a conductor or not is
a. Ammeter
b. Voltmeter
c. Galvanometer
d. Battery

9. The process of Inducing current in a coil of wire by placing it in a region of changing magnetic field is
a. Electrical effect
b. Heating effect of current
c. Magnetic effect of current
d. Electromagnetic induction

10. The frequency of power supply used in India is
a. 70Hz
b. 50Hz
c. 60 Hz
d. 30Hz

11 Which of the following property of proton will change while it moves freely in a magnetic field
a Mass
b speed
c velocity
d momentum

12 Which one is correct among the following?
a Red insulated wire is called live wire
b Black insulated wire is called neutral wire
c Green insulated wire is called earthing
d All of the above

13 The magnetic field lines inside a solenoid is in the form of :
a Curved line
b circular lines
c Zig -zag lines
d parallel straight lines

14 The core of electromagnet is:
a Soft iron
b steel
c magnesium
d copper

CHAPTER 14

Sources ofEnergy

1. Factors which decide whether the given fuel is a good fuel are
   a. Heat it releases on burning
   b. Availability of the fuel
   c. Smoke produced by it on heating
   d. All of the above

2. In case of Thermal power plant
   a. Electrical energy is converted into mechanical energy
   b. Heat energy is converted into sound energy
   c. Heat energy is converted into electrical energy
   d. Mechanical energy is converted into electrical energy

3. Tehri Dam is constructed on the river
   a. Narmada
   b. Yamuna
   c. Ganga
   d. Mahanadi

4. The largest wind energy farm is established in
   a. Chennai
   b Kanyakumari
   c. Madurai
   d. Kalpakkam

5. The value of solar constant is
   a. $1.8kW/m^2$
   B $1.6kW/m^2$
   c. $1.4kW/m^2$
   d. $1.2kW/m^2$

6. The device which converts solar energy into electricity is
   a. Solar cell
   b. Electric motor
   c. Generator
   d. Solar cooker

7. More amount of heat energy can be produced in a solar cooker by using
   a. A plane mirror
   b. A convex mirror
   c. A concave mirror
   d. A glass plate

8. In a nuclear fission reaction the mass of the original nucleus is
   a. Just little more than the sum of the masses of the individual products
   b. Just equal to the sum of the masses of the individual products
   c. Just little lesser than the sum of the masses of the individual products
   d. not comparable with individual masses of the products

9. The working of atom bomb is based on the principle of
   a. Release of energy in Nuclear fusion
   b. Conversion of mechanical energy into electrical energy
   c. Release of energy in Nuclear fission
   d. Conversion of wave l energy into electrical energy

10. The energy from the hot water springs of the underground used to produce electrical energy that is Geo-thermal energy is operational in
   a. India
   b. New Zealand
   c. Africa
   d. Syria

11 What is the ultimate source of energy?
   a Water
   b sun
   c uranium
   d fossil fuel

12 Tidal energy is harnessed by constructing
   a Bridge
   b dam
   c pipe
   d road

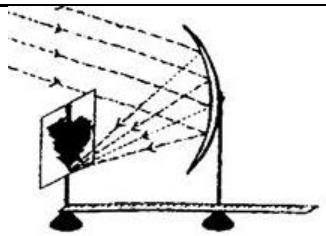
13 The energy possessed by huge waves needed to generate electricity is :

   a Solar energy
   b Kinetic energy
   c potential energy
   d heat energy

14 The most common material used for making solar cell is
   a Silicon
   b magnalium
   c bronze
   d aluminium

Answer –Key(PHYSICS-X)

Chapter-10			Chapter-11		
Q.No	option	Correct Answer	Q.No	option	Correct Answer
1	c	Becomes visible again	1	b	Power of accommodation of the eye
2	b	Virtual, erect, diminished	2	b	25cm
3	a	Rays from an object placed at a large distance in a concave mirror after reflection forms the image at the Focus	3	b	Short sightedness or myopia
4	c	Placed at a distance of 15 cm from the pole of the mirror	4	a	Long sightedness or Hypermetropia
5	c	concave	5	c	Concave lens

6	c	n=speed of light in the air/speed of light in the medium	6	a	Convex lens
7	b	Incident ray is parallel to the emergent ray	7	c	Presbyopia
8	c	Convex mirror	8	c	Dispersion
9	c	1/v+1/u =1/f	9	a	Opposite to the sun
10	b	Concave mirror	10	a	Atmospheric refraction of star light
11	a		11	b	real and inverted
12	b	away from the screen	12	b	(1/16) of a second
13	d	infinity	13	a	Lens
14	a	Away from the lens	14	d	All of the above
15	b	angle of refraction	15	a	Refraction

Chapter-12		
Q.No	option	Correct Answer
1	a	1.6 X 10^{-18}A
2	c	300C
3	d	All of the above
4	d	All of the above
5	a	
6	b	48J
7	d	Becomes 4 times
8	a	R= V/I
9	c	11ohms
10	c	Gets divided across each component
11	c	n^2x
12	d	parallel to the line wire
13	d	ammeter in series and voltmeter in parallel
14	d	All of the above
15	b	0.025
16	c	Reverse connection of voltmeter

Chapter-13			Chapter-14		
Q.No	option	Correct Answer	Q.No	option	Correct Answer
1	a	Oersted	1	d	All of the above
2	a	From south to north	2	c	Heat energy is converted into electrical energy
3	b	An iron piece into it	3	c	Ganga
4	c	The number of lines crossing a given point	4	b	Kanyakumari
5	c	same at all points	5	c	$1.4kW/m^2$
6	d	Into the page	6	a	Solar cell
7	b	Increases heavily	7	c	A concave mirror
8	c	Galvanometer	8	a	Just little more than the sum of the masses of the individual products
9	c	Electromagnetic induction	9	c	Release of energy in Nuclear fission
10	b	50Hz	10	b	New Zealand
11	c,&d	Velocity ,&momentum	11	b	sun
12	d	All of the above	12	b	dam
13	d	parallel straight lines	13	b	Kinetic energy
14	a	Soft iron	14	a	Silicon

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