

KENDRIYA VIDYALAYA KANNUR

MULTIPLE CHOICE QUESTIONS

SUB: PHYSICS

CLASS: XII

The minimum value of charge on any charged body may be

- (a) 1.6×10^{-19} C (b) 1C (c) $1\mu\text{C}$ (d) 4.8×10^{-12} C

Ans. (a) 1.6×10^{-19} C

1. When the distance between two charged particles is halved, the coulomb force between them becomes

- (a) One half (b) one fourth (c) double (d) four times

Ans. (d) four times

2. The net charge on a capacitor is

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

Ans. (d) zero

3. A magnetic needle is kept in uniform magnetic field. It experiences

- (a) A force and a torque
(b) A force but not a torque
(c) A torque but not a force
(d) Neither a torque nor a force

Ans. (c) A torque but not a force

4. How does the magnetic susceptibility χ of a paramagnetic material change with absolute temperature T?

- (a) χ is directly proportional to T
(b) χ is inversely proportional to T
(c) χ is a constant
(d) none of these

Ans. (b) χ is inversely proportional to T

5. The part of electromagnetic spectrum belonging to 2.7K is

- (a) infrared (b) ultraviolet (c) X-rays (d) microwaves

Ans. (d) microwaves

6. Transmission of light in optical fibre is due to
- (a) Scattering (b) diffraction
(b) refraction (d) multiple total internal reflection

Ans. (d) multiple total internal reflection

7. Which of the following phenomenon cannot take place with longitudinal waves?
- (a) reflection (b) interference (c) diffraction (d) polarization

Ans. (d) polarization

8. If an electron and photon propagate in the form of waves having same wavelength, it implies that they have same:
- (a) Speed (b) momentum (c) energy (d) all the above

Ans. (b) momentum

9. In the following transitions of the hydrogen atom, the one which gives an absorption line of highest frequency is
- (a) $n=1$ to $n=2$ (b) $n=3$ to $n=8$
(c) $n=2$ to $n=1$ (d) $n=8$ to $n=3$

Ans. (a) $n=1$ to $n=2$

Multiple choice questions (physics)

1. Angle between the electric field vector along the axial and the equatorial direction of an electric dipole

(i), 180° (ii) 0° (iii) 90° (iv) none of these

2. A dielectric is inserted between the plates of a capacitor keeping the battery connected. The capacitance and the charge of the capacitor varies as

(i) both increases (ii) capacitance increases and charge remains constant (iii) both decreases
(iv) capacitance increases and charge decreases

3. The terminal voltage across the a cell when it is being charged

(i) $E + Ir$ (ii) $E - Ir$ (iii) E (iv) None of these

4. What is the shape of the path of a charge if it is entering parallel to a magnetic field

(i) straight line (ii) circular (iii) Helical (iv) parabola

5. The angle of dip at a place where the horizontal and vertical components of the earth's magnetic field are same

(i) 0° (ii) 45° (iii) 30° (iv) 60°

6. The refractive index of a convex lens is 1.5. It is immersed in a liquid of refractive index 1.65. What is the nature of the lens

(i) converging (ii) diverging (iii) plane glass (iv) no change in the focal length

7. The fringe width in Young's double slit experiment is 0.1mm. The whole apparatus is immersed in water without any change in d and D . The new fringe width in mm is ($n_w=1.3$)

(i) $0.1/1.3$ (ii) $0.1 \cdot 1.3$ (iii) no change in the fringe width (iv) 0.5

8. The ratio of De Broglie wavelength of an electron and proton both accelerated to the same momentum

(i) 1:1 (ii) 1:2 (iii) m_e/m_p (iv) m_p/m_e

9. The ratio of nuclear density of hydrogen and oxygen

(i) 1:1 (ii) 1:2 (iii) 1:8 (iv) 8:1

10. The energy of electron in the ground state of Hydrogen atom is -13.6eV. The kinetic and potential energy in the first excited state is

(i) 3.4eV, 6.8eV (ii) 3.4eV -6.8eV (iii) -3.4eV -6.8eV (iv) 3.4eV, 6.8eV

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CLASS XII SUBJECT: PHYSICS

QUESTION

- 1) When air between the plates of a capacitor is replaced by mica of dielectric constant 6, its capacity will become -----
- 2) What is the flux through a cube of side a , if a point charge of q is at one of its corner?
- 3) A wire of resistance 5 ohm is drawn out, so that its length becomes twice its original length. What will be the value of new resistance?
- 4) Resistivity is the property of the material and it depends upon the ----- of the substance and -----.
- 5) In a meter bridge expt. The ratio of the left gap resistance to the right gap resistance is 2:3. What will be the balancing length from left?

- 6) Name the best device for the accurate measurement of the emf of a cell.
- 7) A meter bridge works on the principle of -----.
- 8) Amperes circuital law can be derived from ----- law.
- 9) A current carrying circular coil behaves as a -----.
- 10) A moving charge is a source of ----- and -----.

MCQ'S IN PHYSICS CLASS 12

1. The Gaussian surface for calculating the electric field due to a charge distribution is:

- a) Any closed surface around the charge distribution
- b) Any surface near the charge distribution
- c) A spherical surface
- d) A symmetrical closed surface at every point of which electric field has a single fixed value.

Sol: d)

2. How many electrons are there in -1 coulomb?

- a) 6.25×10^{18}
- b) 62.5×10^{18}
- c) 6.023×10^{23}
- d) 1.6×10^{-19}

Sol: (a)

3. The value of charge q at the centre of two equal and like charges Q so that the three are in equilibrium is:

- a) Q
- b) $+Q/4$
- c) $-Q/4$
- d) $Q/2$

Sol: (c)

4. In an LCR-**series** ac circuit, the voltage across each of the component L, C and R is 50 V. The voltage across the LC-combination will be

- (a) 50 V
- (b) $50\sqrt{2}$ V
- (c) 100 V
- (d) zero

Sol: (d)

5. An AC circuit has a resistance of 12 ohm and an impedance of 15 ohm. The power factor of the circuit will be

(a) 0.8

(b) 0.4

(c) 0.125

(d) 1.25

Sol: (d)

6. The core of any transformer is laminated so as to

(a) reduce the energy loss due to eddy currents.

(b) make it light weight.

(c) make it robust and strong.

(d) increase the secondary voltage.

Sol: (a)

7. Which of the following is not an electromagnetic wave.

(a) X-rays

(b) Alpha-rays

(c) Gamma-rays

(d) Light rays

Sol: (b)

8. Lenz's Law is a consequence of law of conservation of

(a) Energy only.

(b) Charge only.

(c) Momentum only.

(d) Energy and momentum.

Sol: (a)

9. One complete set of negative and positive values of alternating quantities is called

- (a) Time period.
- (b) Amplitude.
- (c) Frequency.
- (d) Cycle.

Sol: (d)

10. The law of electromagnetic induction have been used in the construction of

- (a) Electric operator.
- (b) Electric motor.
- (c) Galvanometer.
- (d) None of the above.

Sol: (b)

CLASS XII PHYSICS – OBJECTIVE TYPE QUESTIONS

1. A capacitor is charged by a battery. The battery is removed and another identical uncharged capacitor is connected in parallel. The total electrostatic energy of resulting system
 - a) decreases by a factor of 2
 - b) remains the same.
 - c) increases by a factor of 2
 - d) increases by a factor of 4
2. In Young's double slit experiment the fringe pattern as seen on the screen is
 - a) Parabola
 - b) Hyperbola
 - c) ellipse
 - d) spiral.
3. For the shortest wavelength present in the Paschen series of hydrogen spectral lines,
 - a) $n_2=3, n_1=\infty$
 - b) $n_2=\infty, n_1=3$
 - c) $n_2=3, n_1=\infty$
 - d) $n_2=\infty, n_1=1$
4. Unpolarised beam of light of intensity I_0 is incident on a polarizer P_1 . If another polarizer P_2 is held parallel to it such that its pass axis is oriented at an angle 60° , then what percentage of light will emerge out from the system.
 - a) 30%
 - b) 100%
 - c) 12.5%
 - d) 37.5%
5. What is the value of minimum force in N acting between two charges placed 1m apart from each other?
 - a) Ke^2
 - b) Ke
 - c) $Ke/4$
 - d) $Ke^2/2$

Fill in the blanks with appropriate answers.

6. There is no effect of temperature ontype of materials.
7. A ray of light undergoestwice on passing through a prism.
8. Momentum of photon in different media is

Answer the following questions in one word.

9. At what temperature would an intrinsic semiconductor behave like a perfect insulator?
10. Plot the V - I characteristic curve of a diode during forward biasing.

XII PHYSICS MCQ

1. What is the value of minimum force acting between two charges placed at 1m apart from each other.
(a) Ke^2 (b) Ke (c) $Ke/4$ (d) $Ke^2/2$
2. What will be the value of electric field at the centre of the electric dipole
(a) Zero
(b) Equal to the electric field due to the one charge at the centre
(c) Twice the electric field due to the one charge at the centre
(d) Half the value of electric field due to the one charge at the centre
3. Three capacitors of capacitances $1\mu\text{F}, 2\mu\text{F}, 3\mu\text{F}$ are connected in series and a p.d of 11V is applied across the combination. The potential difference across the plate of $1\mu\text{F}$ is
(a) 2V (b) 4V (c) 1V (d) 6V
4. Two conducting spheres A and B of radii a and b respectively are at the same potential. The ratio of surface charge densities of A and B is
(a) b/a (b) a/b (c) a^2/b^2 (d) b^2/a^2
5. If the distance between two current carrying wires is doubled the the force between them is
(a) doubled (b) halved (c) tripled (d) quadrupled
6. A solenoid has 1000 turns per meter length. If a current of 5A is flowing through it then the magnetic field inside the solenoid is
(a) $2\pi \times 10^{-3} \text{ T}$ (b) $2\pi \times 10^{-5} \text{ T}$ (c) $4\pi \times 10^{-3} \text{ T}$ (d) $4\pi \times 10^{-5} \text{ T}$
7. EM waves can be produced by
(a) Accelerated charge particles
(b) Charged particles moving with constant speed
(c) Charged particles at rest

- (d) Charged particles either at rest or at constant speed
8. Optical fibers are based on the phenomenon of
(a) reflection (b) refraction (c) dispersion (d) total internal reflection
9. The wavefront due to a source situated at infinity is
(a) spherical (b) cylindrical (c) plane (d) rectangular
10. The ground state energy of hydrogen atom is -13.6 eV. What is the kinetic energy of an electron in the third excited state
(a) -3.4 eV (b) -1.51 eV (c) -0.85 eV (d) 0 eV

ANSWERS

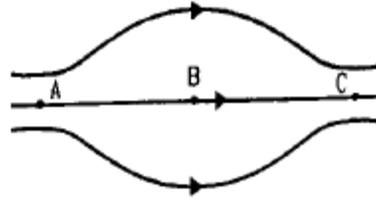
1. a
2. c
3. d
4. a
5. b
6. a
7. a
8. d
9. c
10. b

Beena Mathews

PGT PHYSICS

SECTION – A

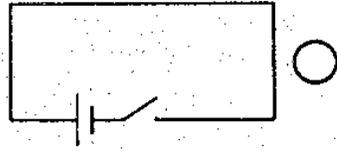
1. Figure shows some of the electric field lines corresponding to an electric field. The figure suggests that



- (a) $E_A > E_B > E_C$ (b) $E_A = E_B = E_C$ (c) $E_A = E_C > E_B$ (d) $E_A = E_C < E_B$
2. Consider the situation of figure. The work done in taking a point charge from P to A is W_A , from P to B is W_B and from P to C is W_C



- (a) $W_A < W_B < W_C$ (b) $W_A > W_B > W_C$ (c) $W_A = W_B = W_C$ (d) None of these.
3. A metallic resistor is connected across a battery. If the number of collisions of the free electrons with the lattice is somehow decreased in the resistor (for example, by cooling it), the current will
- (a) increase (b) decrease (c) remain constant (d) become zero.
4. The magnetic susceptibility is negative for
- (a) paramagnetic materials only (b) diamagnetic materials only
- (c) ferromagnetic materials only (d) paramagnetic and ferromagnetic materials.
5. Consider the situation shown in figure if the switch is closed and after some time it is opened again. The closed loop will show



- (a) an anticlockwise current –pulse and then a clockwise current-pulse
 (b) a clockwise current-pulse
 (c) an anticlockwise current-pulse and then a clockwise current-pulse
 (d) a clockwise current-pulse and then an anticlockwise current-pulse.
6. Electromagnetic waves are produced by
 (a) a static charge (b) a moving charge
 (c) an accelerating charge (d) chargeless particles.
7. The image formed by a concave mirror
 (a) is always real
 (b) is always virtual
 (c) is certainly real if the object is virtual
 (d) is certainly virtual if the object is real.
8. Two sources are called coherent if they produce waves
 (a) of equal wavelength
 (b) of equal velocity
 (c) having same shape of wave front
 (d) having a constant phase difference.
9. The work function of a metal is $h\nu_0$. Light of frequency ν falls on this metal. The photoelectric effect will take place only if
 (a) $\nu \geq \nu_0$ (b) $\nu > 2\nu_0$ (c) $\nu < \nu_0$ (d) $\nu < \nu_0/2$.
10. In which of the following systems will the radius of the first orbit ($n = 1$) be minimum?
 (a) $n = 5$ to $n = 4$ (b) $n = 4$ to $n = 3$ (c) $n = 3$ to $n = 2$ (d) $n = 2$ to $n = 1$

ANSWERS:

| Q No | SECTION A |
|------|-----------|
| 1. | (a) |
| 2. | (c) |
| 3. | (a) |
| 4. | (b) |
| 5. | (d) |
| 6 | (c) |
| 7. | (c) |
| 8. | (d) |
| 9. | (a) |
| 10. | (d) |

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PHYSICS - MCQ

CLASS:- XII

1. A heat produced by 100W heater in 2 minutes is equal to
a. 10.5 kJ b. 16.3 kJ c. 12.0 kJ d. 14.2 kJ
2. The shape of the interference fringes in Young's double slit experiment when D (distance between slit and screen) is very large as compared to fringe width is nearly
a. Straight line b. Parabolic c. Circular d. hyperbolic
3. When the distance between the charged particles is halved, the force between them becomes
a. One-fourth b. Half c. Double d. Four times
4. A p-type semiconductor can be obtained by adding
a. Arsenic to pure silicon b. Gallium to pure silicon
b. Antimony to pure germanium d. Phosphorous to pure germanium
5. The phenomenon utilised in an optical fibre is
a. Refraction b. Interference c. Polarization d. Total internal reflection
6. A convex lens of focal length 40 cm is in contact with a concave lens of focal length 25 cm.
a. -1.5 D b. -6.5 D c. +6.5 D d. +6.67 D
7. The minimum charge on an object is
a. 1 coulomb b. 1 stat coulomb c. 1.6×10^{-19} coulomb d. 3.2×10^{-19} coulomb
8. In a current carrying long solenoid, the field produced does not depend upon
a. Number of turns per unit length
b. Current flowing c. Radius of the solenoid d. All of the above three
9. The Lyman series of hydrogen spectrum lies in the region
a. Infrared b. Visible c. Ultraviolet d. X-rays
10. pn-junction diode works as an insulator, if connected
a. To A.C. b. In forward bias c. In reverse bias d. None of these

Answers

1. C 2. A 3. D 4. B 5. D 6. A 7. C 8. C 9. C 10. c

CLASS XII PHYSICS MCQ, KV RAMAVARMAPURAM

1) Which of the following is not a scalar quantity?

- a. Electrical potential b. Capacitance c. dielectric constant d. dipole moment

ans)d

2) At room temperature relation between number of holes and electrons in silicon crystal is doped with trivalent impurity:

- (a) $n_e > n_h$ (b) $n_e < n_h$ (c) $n_e = n_h$ (d) $n_e \geq n_h$

Ans)b

3) The color code on a carbon resistor is: red-yellow-brown-gold. Its value is

- a. $34k\Omega \pm 5\%$ b. $240\Omega \pm 5\%$ c. $24\Omega \pm 10\%$ d. $34\Omega \pm 10\%$

ans)c

4) At a place on earth, if $B_v = B_H$, the angle of dip is

- a. 30° b. 45° c. 60° d. 90°

ans)b

5) In a Cyclotron, the time period of revolution of an ion does not depend on

- a. Magnetic field strength b. speed c. charge d. mass

ans)b

6) The de Broglie wavelength of an electron accelerated through a p.d. V is proportional to:

- a) V (b) $1/V$ (c) \sqrt{V} (d) $1/\sqrt{V}$

ans)d

7. A student connects 10 dry cells each of emf 'E' and internal resistance 'r' in series, but by mistake the one cell gets wrongly connected. Then net emf and net internal resistance of the combination will be:

- a) $8E, 8r$ (b) $8E, 10r$ (c) $10E, 10r$ (d) $8E, r/10$

ans)b

8)A Transformer works on the principle of:

- a) self induction (b) mutual induction (c) electrical inertia (d) magnetic effect

ans)b

9) The rays used in food preservation and sterilizing the surgical instruments are:

- a) Microwave (b) UV rays (c) X-rays (d) radio waves

ans)b

10) A microscope is focused on a mark. Then a glass slab of refractive index 1.5 and thickness 6 cm is placed on the mark. To get the mark again in focus the microscope should be moved:

- a) 2 cm downward (b) 2 cm upward (c) 4 cm upward (d) 4 cm downward

ans)b

KENDRIYA VIDYALAYA ADOOR SHIFT 2

MCQ CLASS XII PHYSICS

1. What is the angle between equipotential surface and electric field
(a) 90° always (b) 0° always (c) 45° (d) 0° to 90°
2. A wire is drawn such that the radius changes from r to $2r$. The new resistance is
(a) 1 times (b) 4 times (c) 8 times (d) $1/16$ times
3. A positive charge is moving upward in a magnetic field which is towards north. The particle will be deflected towards
(a) East (b) West (c) North (d) South
4. If the ratio of horizontal component of earth's magnetic field to the resultant magnetic field at a place is $1/\sqrt{2}$. What is the angle of dip at that place.
(a) 30° (b) 60° (c) 45° (d) 90°
5. A metal ring is held horizontally and a bar magnet is dropped through the ring with its length along the axis of the ring. The acceleration of the falling magnet is
(a) equal to g (b) less than g (c) more than g (d) $2g$
6. If the speed of the rotation of a dynamo is doubled the induced emf will
(a) become half (b) become double (c) become 4 times (d) remain same.
7. An astronomical telescope of tenfold angular magnification has a length of 44 cm. The focal length of the objective lens
(a) 4 cm (b) 44 cm (c) 40 cm (d) 440 cm
8. A diffraction pattern is obtained by using a beam of red light. What will happen, if the red light is replaced by blue light
(a) bands disappear (b) bands become broader and farther apart
(c) no change (d) bands become narrower and crowded
9. If the momentum of a particle is doubled, then de Broglie wavelength will
(a) remain unchanged (b) become four times (c) become two times
(d) become half
10. Why there is a sudden increase in current in a Zener diode

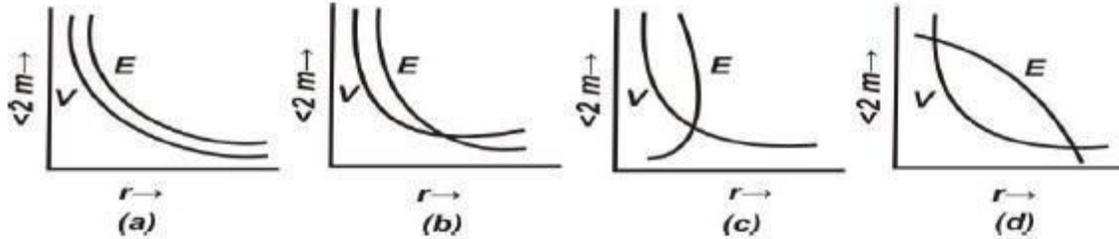
(a) due to high doping (b) resistance of the depletion layer is less
(c) due to rupture of bonds (d) all of the above

Answers

1(a) 2(d) 3(b) 4(c) 5(b) 6(b) 7(c) 8(d) 9 (d) 10 (c)

CLASS XII – PHYSICS

1 The variation potential V with r & electric field with r for a point charge is correctly shown in the graphs.



2. A cell of internal resistance 3 ohm and emf 10 volt is connected to a uniform wire of length 500 cm and resistance 3 ohm. The potential gradient in the wire is

- (a) 30 mV/cm (b) 10 mV/cm
(c) 20 mV/cm (d) 4 mV/cm

3. Two wires of same length are shaped into a square and a circle if they carry same current, ratio of magnetic moment is :

- (a) $2 : \pi$ (b) $\pi : 2$
(c) $\pi : 4$ (d) $4 : \pi$

4. A conducting square loop of side L and resistance R moves in its plane with a uniform velocity v perpendicular to one of its sides. A magnetic induction B constant in time and space, pointing perpendicular and into the plane of the loop exists everywhere. The current induced in the loop is

- (a) Blv/R clockwise (b) Blv/R anticlockwise (c) $2Blv/R$ anticlockwise (d) Zero

5. In a purely resistive a.c. circuit, the current

- (a) is in phase with the e.m.f.
(b) leads the e.m.f. by a difference of π radians phase
(c) leads the e.m.f. by a phase difference of $\pi/2$ radians
(d) lags behind the e.m.f. by phase difference of $\pi/4$ radians

6. An astronomical telescope has a large aperture to:

- (a) increase span of observation
(b) have low dispersion

(c) reduce spherical aberration

(d) have high resolution

7. Unpolarised beam of light of intensity I_0 is incident on a polariser P_1 . Another polariser P_2 is held parallel to it such that its pass axis is oriented at an angle 60° , then what percentage of light will emerge from the system:

(a) 30% (b) 100% (c) 12.5% (d) 37.5%

8. Which of the following has maximum stopping potential when metal is illuminated by visible light?

(a) Blue (b) Yellow (c) Violet (d) Red

9. What was the order of thickness of gold foil on which beam of alpha particles allowed to fall in Geiger-Marsden Experiment?

a) 10^{-3} m b) 10^{-9} m c) 10^{-7} m d) 10^{-5} m

10. The nuclei of the isotopes of an element all contain the same number of a certain particle. What is this particle?

(a) electron (b) neutron (c) nucleon (d) proton

Answers

1 B

2 B

3 C

4 D

5 A

6 D

7 C

8 C

9 C

10 D

Class XII

PHYSICS

1. Which of the following is a scalar quantity?

- a) Electric field intensity
- b) Electric flux
- c) Magnetic field intensity
- d) Magnetic moment

2. The net charge on a capacitor is

- a) $+q$
- b) $-q$
- c) zero
- d) $2q$

3. Which of the following material has negative temperature coefficient of resistivity

- a) Copper
- b) Silicon
- c) Aluminum
- d) Nichrome

4. The sensitivity of a moving coil galvanometer increases with the decrease in

- a) Area of coil
- b) Number of turns
- c) Magnetic field
- d) Torsional rigidity

5. Which part of the electromagnetic spectrum has the largest penetrating power

- a) Radio waves
- b) X-rays
- c) Gamma rays
- d) Microwaves

6. Transmission of light in optical fibre is due to

- a) Diffraction
- b) Reflection
- c) Multiple total internal reflection
- d) Refraction

7. When trivalent impurity is mixed with pure semiconductor, the conduction is mainly due to

- a) Protons
- b) Electrons
- c) Holes
- d) Positive ions

8. Which of the device is used as a voltage regulator

- a) Photo diode
- b) Solar cells
- c) LED
- d) Zener diode

9. In a plane perpendicular to the magnetic meridian, the dip needle will be

- a) Horizontal
- b) Vertical
- c) Inclined equal to the angle of dip at the place
- d) Pointing in any direction

10. If a copper wire is stretched to make 0.1% longer, the percentage increase in resistance will be

- a) 2
- b) 0.2
- c) 0.1
- d) 1

MCQS –CLASS XII-Physics

1. The value of electric field inside a conducting sphere having radius R and charge Q will be
a) KQ/R^2 b) KQ^2/R^2 c) 0 d) KQ/R
2. The unit of electric flux is -----
3. How much work is required to carry a $6\mu\text{C}$ charge from the negative to the positive terminal of a 9V battery
a) $54 \times 10^{-3}\text{J}$ 2) $54 \times 10^{-6}\text{J}$ 3) $54 \times 10^{-9}\text{J}$ 4) $54 \times 10^{-12}\text{J}$
4. Two wires of same material having length L and $2L$ and cross-sectional areas $4A$ and A respectively. The ratio of their specific resistance will be
a) 1:2 b) 8:1 c) 1:1 d) 1:4
5. In meterbridge experiment, copper strips are used in place of copper wires due to their low
6. An electric current passes through a long straight copper wire. At a distance 5 cm from the wire magnetic field is B . The magnetic field at 20 cm from the wire is
a) $B/4$ b) $B/2$ c) $B/3$ d) $B/6$
7. If the distance between current-carrying wires is doubled, then the force between them is
a) halved b) tripled c) doubled 4) quadrupled
8. Which of the following is an example of diamagnetic material
a) copper b) nickel c) aluminium d) iron
9. The direction of induced current is such that it opposes the very cause that has produced it. This is the law of
a) Lenz b) Kirchhoff c) Faraday d) Fleming
10. An alternating emf of angular frequency ω is applied across an inductance. The instantaneous power developed across it has an angular frequency
a) $\omega/4$ b) ω c) $\omega/2$ d) 2ω

ANSWERS

- 1) C 2) Nm^2C^{-1} 3) b 4) c 5) conductivity 6) b 7) a 8) a 9) a 10) d

Class XII

PHYSICS

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- d) $2q$

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- c) Gamma rays
- d) Microwaves

6. Transmission of light in optical fibre is due to

- a) Diffraction
- b) Reflection
- c) Multiple total internal reflection
- d) Refraction

7. When trivalent impurity is mixed with pure semiconductor, the conduction is mainly due to

- a) Protons
- b) Electrons
- c) Holes
- d) Positive ions

8. Which of the device is used as a voltage regulator

- a) Photo diode
- b) Solar cells
- c) LED
- d) Zener diode

9. In a plane perpendicular to the magnetic meridian, the dip needle will be

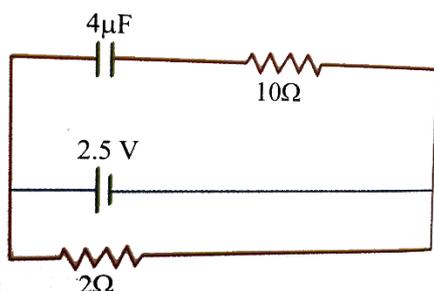
- a) Horizontal
- b) Vertical
- c) Inclined equal to the angle of dip at the place
- d) Pointing in any direction

10. If a copper wire is stretched to make 0.1% longer, the percentage increase in resistance will be

- a) 2
- b) 0.2
- c) 0.1
- d) 1

KENDRIYA VIDYALAYA KALPETTA
CLASS XII - PHYSICS
MULTIPLE CHOICE QUESTIONS

1. A capacitor of $4\ \mu\text{F}$ is connected as shown in the circuit. The internal resistance of the battery is $0.5\ \Omega$. The amount of charge on the capacitor plates will be
- (a) 0
(b) $4\ \mu\text{C}$
(c) $16\ \mu\text{C}$
(d) $8\ \mu\text{C}$



2. The electrostatic potential on the surface of a charged conducting sphere is 100V. Two statements are made in this regard:
S1 : At any point inside the sphere, electric intensity is zero.
S2 : At any point inside the sphere, the electrostatic potential is 100V.
Which of the following is a correct statement?
- (a) S1 is true but S2 is false.
(b) Both S1 & S2 are false.
(c) S1 is true, S2 is also true and S1 is the cause of S2.
(d) S1 is true, S2 is also true but the statements are independent.
3. Equipotential at a great distance from a collection of charges whose total sum is not zero are approximately
- (a) spheres.
(b) planes.
(c) paraboloids
(d) ellipsoids.
4. Consider a uniform electric field in the \hat{z} direction. The potential is a constant
- (a) in all space.
(b) for any x for a given z .
(c) for any y for a given z .
(d) on the x - y plane for a given z .
5. Equipotential surfaces
- (a) are closer in regions of large electric fields compared to regions of lower electric fields.
(b) will be more crowded near sharp edges of a conductor.
(c) will be more crowded near regions of large charge densities.

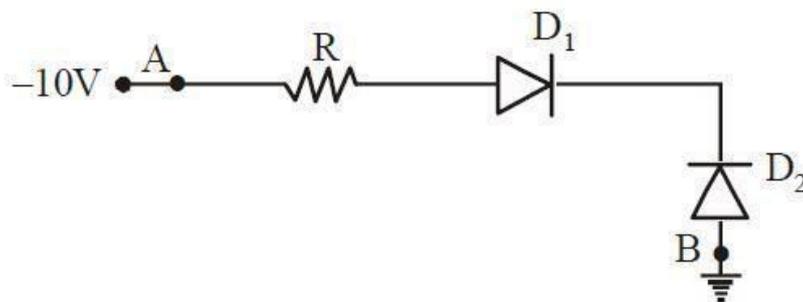
- (d) will always be equally spaced
6. A positively charged particle is released from rest in a uniform electric field. The electric potential energy of the charge
 - (a) remains a constant because the electric field is uniform.
 - (b) increases because the charge moves along the electric field.
 - (c) decreases because the charge moves along the electric field.
 - (d) decreases because the charge moves opposite to the electric field
 7. A resistance R is to be measured using a meter bridge. Student chooses the standard resistance S to be 100Ω . He finds the null point at l
 $l = 2.9$ cm. He is told to attempt to improve the accuracy. Which of the following is a useful way?
 - (a) He should measure l more accurately.
 - (b) He should change S to 1000Ω and repeat the experiment.
 - (c) He should change S to 3Ω and repeat the experiment.
 - (d) He should give up hope of a more accurate measurement with a meter bridge.
 8. Two cells of emf's approximately $5V$ and $10V$ are to be accurately compared using a potentiometer of length 400cm .
 - (a) The battery that runs the potentiometer should have voltage of $8V$.
 - (b) The battery of potentiometer can have a voltage of $15V$ and R adjusted so that the potential drop across the wire slightly exceeds $10V$.
 - (c) The first portion of 50 cm of wire itself should have a potential drop of $10V$.
 - (d) Potentiometer is usually used for comparing resistances and not voltages.
 9. Kirchhoff 's junction rule is a reflection of
 - (a) conservation of current density vector.
 - (b) conservation of charge.
 - (c) the fact that the momentum with which a charged particle approaches a junction is unchanged (as a vector) as the charged particle leaves the junction.
 - (d) the fact that there is no accumulation of charges at a junction.
 10. Which of the following characteristics of electrons determines the current in a conductor?
 - (a) Drift velocity alone.
 - (b) Thermal velocity alone.
 - (c) Both drift velocity and thermal velocity.
 - (d) Neither drift nor thermal velocity
 11. An electron is projected with uniform velocity along the axis of a current carrying long solenoid. Which of the following is true?
 - a) The electron will be accelerated along the axis.
 - (b) The electron path will be circular about the axis.
 - (c) The electron will experience a force at 45° to the axis and hence execute a helical path.
 - (d) The electron will continue to move with uniform velocity along the axis of the solenoid.
 12. In a cyclotron, a charged particle
 - (a) undergoes acceleration all the time.
 - (b) speeds up between the dees because of the magnetic field.

- (c) speeds up in a dee.
 - (d) slows down within a dee and speeds up between dees.
13. S is the surface of a lump of magnetic material.
- (a) Lines of B are necessarily continuous across S.
 - (b) Some lines of B must be discontinuous across S.
 - (c) Lines of H are necessarily continuous across S.
 - (d) Lines of H cannot all be continuous across S.
14. In a permanent magnet at room temperature
- (a) magnetic moment of each molecule is zero.
 - (b) the individual molecules have non-zero magnetic moment which are all perfectly aligned.
 - (c) domains are partially aligned.
 - (d) domains are all perfectly aligned
15. A long solenoid has 1000 turns per metre and carries a current of 1 A. It has a soft iron core of $\mu_r = 1000$. The core is heated beyond the Curie temperature, T_c
- (a) The H field in the solenoid is (nearly) unchanged but the B field decreases drastically.
 - (b) The H and B fields in the solenoid are nearly unchanged.
 - (c) The magnetisation in the core reverses direction.
 - (d) The magnetisation in the core diminishes by a factor of about 10^8 .
16. An e.m.f is produced in a coil, which is not connected to an external voltage source. This can be due to
- (a) the coil being in a time varying magnetic field.
 - (b) the coil moving in a time varying magnetic field.
 - (c) the coil moving in a constant magnetic field.
 - (d) the coil is stationary in external spatially varying magnetic field, which does not change with time.
17. The mutual inductance M_{12} of coil 1 with respect to coil 2
- (a) increases when they are brought nearer.
 - (b) depends on the current passing through the coils.
 - (c) increases when one of them is rotated about an axis.
 - (d) is the same as M_{21} of coil 2 with respect to coil 1.
18. A circular coil expands radially in a region of magnetic field and no electromotive force is produced in the coil. This can be because
- (a) the magnetic field is constant.
 - (b) the magnetic field is in the same plane as the circular coil and it may or may not vary.
 - (c) the magnetic field has a perpendicular (to the plane of the coil) component whose magnitude is decreasing suitably.
 - (d) there is a constant magnetic field in the perpendicular (to the plane of the coil) direction.
19. To reduce the resonant frequency in an LCR series circuit with a generator
- (a) the generator frequency should be reduced.
 - (b) another capacitor should be added in parallel to the first.

- (c) the iron core of the inductor should be removed.
- (d) dielectric in the capacitor should be removed.
20. Which of the following combinations should be selected for better tuning of an LCR circuit used for communication?
- (a) $R = 20 \Omega$, $L = 1.5 \text{ H}$, $C = 35 \mu\text{F}$.
- (b) $R = 25 \Omega$, $L = 2.5 \text{ H}$, $C = 45 \mu\text{F}$.
- (c) $R = 15 \Omega$, $L = 3.5 \text{ H}$, $C = 30 \mu\text{F}$.
- (d) $R = 25 \Omega$, $L = 1.5 \text{ H}$, $C = 45 \mu\text{F}$.
21. An inductor of reactance 1Ω and a resistor of 2Ω are connected in series to the terminals of a 6 V (rms) a.c. source. The power dissipated in the circuit is
- (a) 8 W .
- (b) 12 W .
- (c) 14.4 W .
- (d) 18 W .
22. Light with an energy flux of 20 W/cm^2 falls on a non-reflecting surface at normal incidence. If the surface has an area of 30 cm^2 . the total momentum delivered (for complete absorption) during 30 minutes is
- (a) $36 \times 10^{-5} \text{ kg m/s}$.
- (b) $36 \times 10^{-4} \text{ kg m/s}$.
- (c) $108 \times 10^4 \text{ kg m/s}$.
- (d) $1.08 \times 10^7 \text{ kg m/s}$.
23. A charged particle oscillates about its mean equilibrium position with a frequency of 10^9 Hz . The electromagnetic waves produced:
- (a) will have frequency of 10^9 Hz .
- (b) will have frequency of $2 \times 10^9 \text{ Hz}$.
- (c) will have a wavelength of 0.3 m .
- (d) fall in the region of radio waves.
24. The source of electromagnetic waves can be a charge
- (a) moving with a constant velocity.
- (b) moving in a circular orbit.
- (c) at rest.
- (d) falling in an electric field.
25. You are given four sources of light each one providing a light of a single colour – red, blue, green and yellow. Suppose the angle of refraction for a beam of yellow light corresponding to a particular angle of incidence at the interface of two media is 90° . Which of the following statements is correct if the source of yellow light is replaced? with that of other lights without changing the angle of incidence?
- (a) The beam of red light would undergo total internal reflection.
- (b) The beam of red light would bend towards normal while it gets refracted through the second medium.
- (c) The beam of blue light would undergo total internal reflection.
- (d) The beam of green light would bend away from the normal as it gets refracted through the second medium.
26. The radius of curvature of the curved surface of a plano-convex lens is 20 cm . If the refractive index of the material of the lens be 1.5 , it will
- (a) act as a convex lens only for the objects that lie on its curved side.
- (b) act as a concave lens for the objects that lie on its curved side.

- (c) act as a convex lens irrespective of the side on which the object lies.
- (d) act as a concave lens irrespective of side on which the object lies.
27. In a Young's double slit experiment, the source is white light. One of the holes is covered by a red filter and another by a blue filter. In this case
- (a) there shall be alternate interference patterns of red and blue.
- (b) there shall be an interference pattern for red distinct from that for blue.
- (c) there shall be no interference fringes.
- (d) there shall be an interference pattern for red mixing with one for blue
28. Consider the diffraction pattern for a small pinhole. As the size of the hole is increased
- (a) the size decreases.
- (b) the intensity increases.
- (c) the size increases.
- (d) the intensity decreases.
29. For light diverging from a point source
- (a) the wavefront is spherical.
- (b) the intensity decreases in proportion to the distance squared.
- (c) the wavefront is parabolic.
- (d) the intensity at the wavefront does not depend on the distance.
30. Two particles A1 and A2 of masses m_1 , m_2 ($m_1 > m_2$) have the same de Broglie wavelength. Then
- (a) their momenta are the same.
- (b) their energies are the same.
- (c) energy of A1 is less than the energy of A2.
- (d) energy of A1 is more than the energy of A2.
31. Two H atoms in the ground state collide inelastically. The maximum amount by which their combined kinetic energy is reduced is
- (a) 10.20 eV
- (b) 20.40 eV
- (c) 13.6 eV
- (d) 27.2 eV
32. An ionised H-molecule consists of an electron and two protons. The protons are separated by a small distance of the order of angstrom. In the ground state,
- (a) the electron would not move in circular orbits.
- (b) the energy would be 2^4 times that of a H-atom.
- (c) the electrons, orbit would go around the protons.
- (d) the molecule will soon decay in a proton and a H-atom.
33. Consider aiming a beam of free electrons towards free protons. When they scatter, an electron and a proton cannot combine to produce a H-atom,
- (a) because of energy conservation.
- (b) without simultaneously releasing energy in the form of radiation.
- (c) because of momentum conservation.
- (d) because of angular momentum conservation.
34. The Bohr model for the spectra of a H-atom
- (a) will not be applicable to hydrogen in the molecular form.
- (b) will not be applicable as it is for a He-atom.

- (c) is valid only at room temperature.
 (d) predicts continuous as well as discrete spectral line
35. Fusion processes, like combining two deuterons to form a He nucleus are impossible at ordinary temperatures and pressure. The reasons for this can be traced to the fact:
- (a) nuclear forces have short range.
 (b) nuclei are positively charged.
 (c) the original nuclei must be completely ionized before fusion can take place.
 (d) the original nuclei must first break up before combining with each other.
36. Heavy stable nucleus have more neutrons than protons. This is because of the fact that
- (a) neutrons are heavier than protons.
 (b) electrostatic force between protons are repulsive.
 (c) neutrons decay into protons through beta decay.
 (d) nuclear forces between neutrons are weaker than that between protons.
37. Hole is
- (a) an anti-particle of electron.
 (b) a vacancy created when an electron leaves a covalent bond.
 (c) absence of free electrons.
 (d) an artificially created particle.
38. In Figure assuming the diodes to be ideal,
- (a) D1 is forward biased and D2 is reverse biased and hence current flows from A to B
 (b) D2 is forward biased and D1 is reverse biased and hence noncurrent flows from B to A and vice versa.
 (c) D1 and D2 are both forward biased and hence current flows from A to B.
 (d) D1 and D2 are both reverse biased and hence no current flows from A to B and vice versa



MULTIPLE CHOICE QUESTIONS

CLASS XII

SUBJECT PHYSICS- Prepared By- Mrs.K V SUDHA(PGT-Physics)

1 Which of the following has maximum stopping potential when metal is illuminated by visible light? (a) Blue (b) Yellow (c) Violet (d) Red

Ans C [$KE_{\max} = h\nu - \phi \Rightarrow KE_{\max}$ is max for violet

2 The threshold wavelength for a metal having work function ϕ_0 is λ_0 , what is the threshold wavelength for a metal whose work function is $\phi_0/2$.

(a) $4\lambda_0$ (b) $2\lambda_0$ (c) $\lambda_0/2$ (d) $\lambda_0/4$ $\phi_0/2$.

Ans b

3 Silicon is doped with which of the following to obtain P type semiconductor a) Phosphorus b) Gallium c) Germanium d) Bismuth

Ans. (b)

4 20 The cut-in voltage for silicon diode is approximately (a) 0.2 V (b) 0.6 V (c) 1.1 V (d) 1.4 V

Ans (b)

5 If a full wave rectifier circuit is operating from 50 Hz mains, the fundamental frequency in the ripple will be (a) 50 Hz (b) 70.7 Hz (c) 100 Hz (d) 25 Hz

Ans. (c)

6 14 A proton, a neutron, an electron and alpha particle have same kinetic energy, then their De- Broglie wavelengths compare as (a) $\lambda_e = \lambda_p = \lambda_n = \lambda_a$ (b) $\lambda_e > \lambda_p > \lambda_n > \lambda_a$ (c) $\lambda_a < \lambda_p < \lambda_n < \lambda_e$ (d) $\lambda_p = \lambda_n & \lambda_e > \lambda_a$

Ans (b) $\lambda = h/\sqrt{2mK}$ $\lambda \propto \frac{1}{\sqrt{m}}$

7 What is the value of minimum force acting between two charges placed at 1 m apart from each other (a) Ke^2 (b) Ke (c) $4Ke^2$ (d) $Ke^2/2$

Ans. (a)

8 Two cells when connected in series are balanced on 8m on a potentiometer. If the cells are connected with polarities of one of the cell is reversed, they balance on 2m. The ratio of e.m.f.'s of the two cells is (a) 3 : 5 (b) 5 : 3 (c) 3 : 4 (d) 4 : 3

Ans. (b)

9 The magnetic flux linked with a coil at any instant t is $\phi = (6t^2 - 8t + 5)$ Wb, the emf induced in the coil at t= 2 second is- (a) -16V (b) -24V (c) +24V (d) +16V

Answer- (a)

10 What is wavelength of signal weather frequency of 300 megahertz? (a) 2m (b) 20m (c) 10m (d) 1m.

Ans. (d)

CLASS XII PHYSICS MCQ

1. An electric dipole is placed at an angle of 30° with an electric field intensity $2 \times 10^5 \text{ N C}^{-1}$. It experiences a torque equal to 4 Nm . The charge on the dipole, if the dipole length is 2 cm , is

- (a) 8 mC (b) 2 mC (c) 5 mC (d) 7 mC

2. Two waves having the intensities in the ratio of $9:1$ produce interference. The ratio of maximum to minimum intensity is

- (a) $10:8$ (b) $9:1$ (c) $4:1$ (d) $2:1$

3. Three charges $+4q$, Q and q are placed in a straight line of length l at points at distances 0 , $l/2$,

And l respectively. What should be Q in order to make the net force on q to be zero?

- (a) $-q$ (b) $-2q$ (c) $-q/2$ (d) $4q$

4. Critical angle of light passing from glass to air is minimum for

- (a) red (b) green (c) yellow (d) violet

5. The de Broglie wavelength of an electron accelerated to a potential of 400 V is approximately

- (a) 0.03 nm (b) 0.04 nm (c) 0.12 nm (d) 0.06 nm

6. The ground state energy of hydrogen atom is -13.6 eV . What is the potential energy of the electron

In this state.

- (a) 0 eV (b) -27.2 eV (c) $+27.2 \text{ eV}$ (d) -8.3 eV

7. Which is a vector Quantity among the following:

- (a) electric flux (b) electric charge (c) electric field (d) electric potential

8. During which of the following cases potential difference across cell is greater than its emf:

- (a) discharging (b) charging (c) both (a) & (b) (d) none of these

9. A ray of light enters from a denser medium into rarer medium. The speed of light in the rarer medium is twice that in denser medium. What is the critical angle for total internal reflection to take place?

- (a) 60° (b) 45° (c) 30° (d) 150°

10. If the frequency of light is doubled in a photoelectric experiment then the potential will be

- (a) doubled (b) halved (c) more than double (d) less than doubled

FILL IN THE BLANKS

1. When the north pole of a magnet is brought near a ring, the direction of the induced current in the ring is _____.

2. A proton and an α -particle are accelerated through the same potential differences. The ratio of their de-Broglie wavelengths λ_p/λ_α is _____.

3. If μ_0 is permeability of free space and ϵ_0 is permittivity of free space, the speed of light in vacuum is _____.

4. If the horizontal and vertical component of earth's magnetic field are equal at a certain place, then the angle dip at that place is _____.

5. A concave mirror of focal length f in vacuum is placed in a medium of refractive index 2. Its focal length in the medium is _____.

Answer

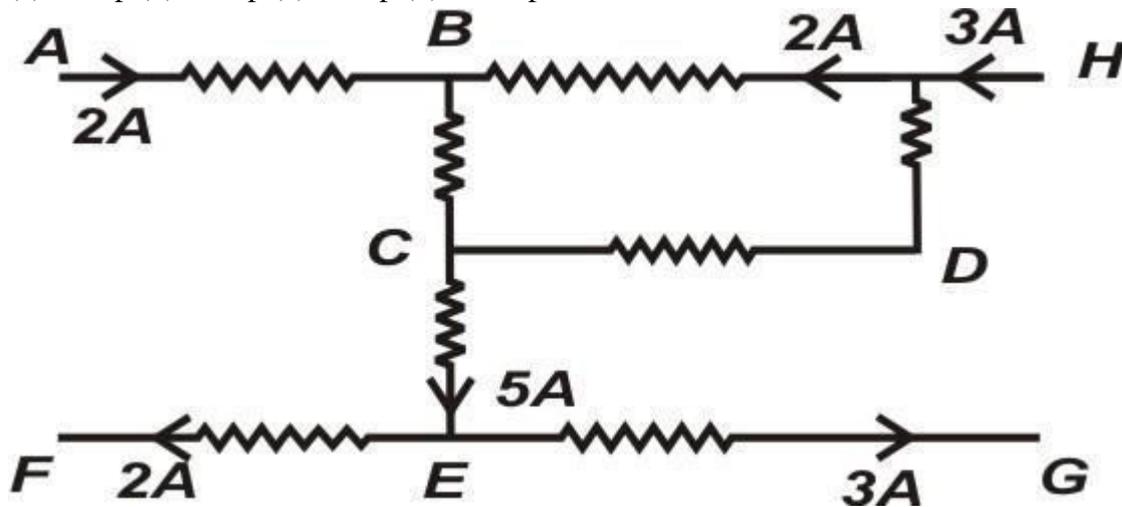
MCQ

1. (b) 2mC Hint: $\tau = PE \sin \theta$
2. (c) 4:1
3. (a) $-q$
4. (d) violet
5. (d) 0.06 nm
6. (b) -27.2 eV
7. (c) electric field
8. (b) charging Hint: during charging, $V = E + ir$, during discharging, $V = E - ir$
9. (c) 30°
10. (a) doubled

FILL IN THE BLANKS

1. Anticlockwise
2. de Broglie wavelength
3. $1/\sqrt{\mu_0 \epsilon_0}$
4. 45°
5. f

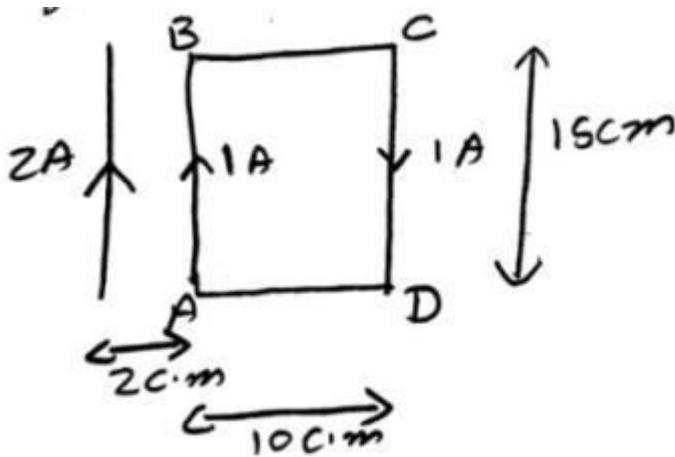
1. In the circuit diagram, calculate the electric current through branch BC:
 (a) 4 amp (b) 2 amp (c) 5 amp (d) 10 amp



Ans. A

2. A rectangular coil ABCD is placed near a long straight current carrying straight wire as shown. What is the net force on the rectangular coil?

- (a) 25×10^{-7} N towards the wire
 (b) 25×10^{-7} N Away from the wire
 (c) 35×10^{-7} N, towards the wire
 (d) 35×10^{-7} N away from the wire



Ans. [A]

3. The coil of a moving coil galvanometer is wound over a metal frame in order to

- (a) reduce hysteresis (b) increase sensitivity (c) increase moment of inertia
 (d) provide electromagnetic damping

Ans. (d)

4. What is the effect on the angular width of interference fringes in a Young's double slit experiment when the screen moved near to the plane of slits.

- (a) increases (b) decreases (c) constant (d) not defined

Ans. (c)

5. The photoelectric work function for a metal surface is 4.14 eV. The cutoff wavelength for this is :

- (a) 4125 Å (b) 2062.5 Å (c) 3000 Å (d) 6000 Å

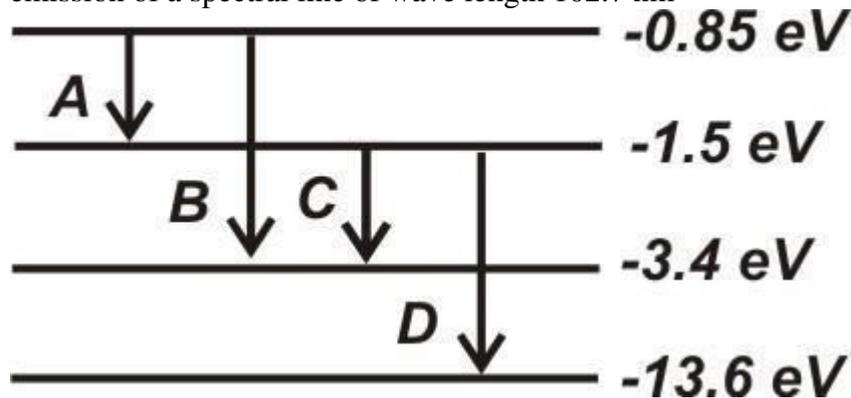
Ans. (c)

6. Which of the following has maximum stopping potential when metal is illuminated by visible light?

- (a) Blue (b) Yellow
(c) Violet (d) Red

Ans. c [$KEmax = h\nu - \phi_0$ $KEmax$ is max or violet]

7. The energy level diagram of an element is given:- , which transition corresponds to the emission of a spectral line of wave length 102.7 nm



- (a) A (b) B (c) C (d) D

(b) **Ans. (d)** [$\Delta E = hc/\lambda = 12.1 \text{ eV}$ For transition D $\Delta E = 12.1 \text{ eV}$]

8. Activity of a radioactive sample decrease to of its original value in 3 days. then in 9 days its activity with becomes

- (a) 1/27 of the original value (b) 1/9 of the original value
(c) 1/18 of the original value (d) 1/3 of the original value

Ans. (a)

9. When a forward bias is applied to a p-n junction, it

- (a) raises the potential barrier. (b) reduces the majority carrier current to zero.
(b) (c) lowers the potential barrier. (d) None of the above.
(c) **Ans. (c)**

10. In a circuit with a coil of resistance 2 ohms, the magnetic flux changes from 2.0 Wb to 10.0 Wb in 0.2 second. The charge that flows in the coil during this time is

- (a) 5.0 coulomb (b) 4.0 coulomb (c) 1.0 coulomb (d) 0.8 coulomb

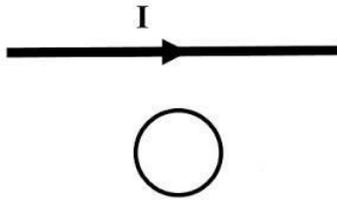
Ans. (b) [$\Delta Q = \Delta\Phi/R = (10-2)/2 = 4C$]

OBJECTIVE TYPE QUESTIONS

CLASS XII- PHYSICS

1. The vertical component of earth's magnetic field at a place is $\sqrt{3}$ times the horizontal component. What is the value of angle of dip at this place?
(a) 45° (b) 30° (c) 60° (d) 90°
2. Name the EM waves used for studying crystal structure of solids.
(a) X rays (b) uv (c) gamma rays (d) IR
3. Name the physical quantity whose SI unit is Nm^2/C .
(a) Electric potential (b) field (c) Force (d) Flux
4. A parallel plate capacitor with air between the plates has a capacitance of 8 pF. What will be the capacitance if the distance between the plates be reduced by half and the space between them is filled with a substance of dielectric constant $K= 5$.
(a) 40pF (b) 80pF (c) 13pF (d) 20pF
5. Calculate the current drawn from the battery if a battery of 3V is being charged with a supply of 33V using a series resistor of 5Ω .
(a) 6A (b) 3A (c) 12A (d) 5A
6. In an ac circuit $X_L=X_C$. What is the power factor?
(a) 0 (b) 1 (c) 2 (d) 0.5

7. A giant refracting telescope has an objective of focal length 16m and eyepiece of focal length 2m. Calculate the angular magnification of the telescope.
(a) 16 (b) 32 (c) 8 (d) 18
8. What is the work done in moving a test charge q through a distance of 1 cm along the equatorial axis of an electric dipole?
9. A carbon resistor of 3300Ω is to be marked with rings for colour identification. The sequence of colours as per colour code is.....
10. Draw graph to show the variation of conductivity with temperature for semiconductors.
11. How does the power of a convex lens vary when it is immersed in a liquid?
12. A ray of light passes through a triangular prism. Plot a graph showing the variation of the angle of deviation with the angle of incidence.
13. Why does the bluish colour predominate in a clear sky?
14. A wire of resistivity $1.5 \times 10^{-4} \Omega \text{ m}$ is stretched to double its length. Its new resistivity is
15. A metallic spherical shell has an inner radius R_1 and outer radius R_2 . A charge Q is placed at the centre of the spherical cavity. The surface charge density on the inner surface is
16. A conducting loop is held below a current carrying wire as shown. Depict the direction of current induced in the loop when the current in the wire is constantly increasing.



17. Name the phenomenon associated with the production of back emf in a coil due to change of electric current through the coil itself.
18. An electron is moving along +ve x axis in the presence of uniform magnetic field along -ve y axis. What is the direction of the force acting on it?
19. A carbon resistor of 8200Ω is to be marked with rings for colour identification. Write the sequence of colours.
20. Draw the graph showing the variation of the magnetic field due to a straight conductor with distance from the conductor.
21. Draw equipotential surfaces for a dipole.
22. Draw graphs to show the variation of conductivity with temperature for (i) semiconductors ,(ii) good conductors
23. Calculate the current drawn from the battery if a battery of 6V is being charged with a supply of 46V using a series resistor of 5 ohms.
24. An alpha particle and a proton moving with same velocities are entering into a perpendicular magnetic field. Which particle moves in a circular path of smaller radius?
25. Two charged spheres separated at a distance d exert a force F on each other. If they are immersed in a liquid of dielectric constant 80, the the force is
a) $F/80$ b) $80F$ c) $40F$ d) $F/64$
26. The unit of permittivity of a medium is
a) $\text{CN}^{-1}\text{m}^{-1}$ b) Nm^2C^{-2} c) $\text{C}^2\text{N}^{-1}\text{m}^{-2}$ d) $\text{C}^2\text{N}^{-2}\text{m}^{-2}$
27. A hollow insulated conducting sphere is given a charge of $20\mu\text{C}$. What will be the electric field at the centre of the sphere if the radius of the sphere is 1m?
a) 5N/C b) 20N/C c) 10N/C
d) zero

28. There is an electric field in the X-direction. If the work done in moving a charge of 0.2C through a distance of 2m along a line making an angle of 60° with the x axis is 4J, then what is the value of E
a) $\sqrt{3} \text{N/C}$ b) 4N/C c) 20N/C d) 5N/C The number of electrons for one coulomb of charge is
a) 6.25×10^{19} b) 6.25×10^{18} c) 6.25×10^{23}
29. An electric dipole placed in a nonuniform field experiences
a) Only force, no torque b) only torque, no net force c) both torque and net force d) no torque and no net force.
30. Shown below is a distribution of charges. What is the flux of the electric field due to these charges through the surface S
a) q / ϵ_0 b) $3q / \epsilon_0$ c) $2q / \epsilon_0$ d) $q / 2\epsilon_0$

7. Mirage is a phenomenon due to
(a) refraction of light
(b) reflection of light
(c) total internal reflection of light
(d) diffraction of light
8. Two lenses of focal lengths 20 cm and - 40 cm are held in contact. If the object is at infinity the image formed by the combination will be at
(a) 10 cm
(b) 20 cm
(c) 40 cm
(d) infinity
9. To observe diffraction, the size of the obstacle
(a) Should be $\lambda / 2$, where λ is the wavelength
(b) Should be of the same order as wavelength
(c) Has no relation to wavelength
(d) Should be much larger than the wavelength
10. The phenomena which is not explained by Huygen's construction of wavefront
(a) reflection
(b) diffraction
(c) refraction
(d) origin of spectra

Objective type Questions – Physics - XII

1. The equipotential surfaces corresponding to single positive charge are concentric spherical shells with the charge at its origin. The spacing between the surfaces for the same change in potential
 - a) is uniform throughout the field
 - b) is getting closer as $r \rightarrow 0$
 - c) is getting closer as $r \rightarrow \infty$
 - d) can be varied as one wish to

2. A positively charged particle enters a magnetic field of $B\hat{i}$ with a velocity $v\hat{j}$. The particle will move
 - (a) In a circle
 - (b) In y-z plane
 - (c) With constant speed
 - (d) All of these are correct

3. Time period for a magnet is T. If it is divided in two equal parts perpendicular to its axis, then time period for each part will be :
 - (a) 4T
 - (b) T/4
 - (c) T/2
 - (d) T

4. A coil of resistance 2000Ω and self-inductance 1.0 Henry has been connected to an a.c. source of frequency $2000/2\pi$ Hz. The phase difference between voltage and current is
 - (a) 30°
 - (b) 60°
 - (c) 45°
 - (d) 75°

5. The refractive index of water is 1.33. The direction in which a man under water should look to see the setting sun is
 - (a) 49° to the horizontal
 - (b) 90° with the vertical
 - (c) 49° to the vertical
 - (d) Along the horizontal

6. A graph is drawn between frequency of incident radiation (on X- axis) and the stopping potential (on Y-axis). Then the slop of the straight line indicates
 - a. $h \times e$
 - b. h/e
 - c. e/h
 - d. $e-h$

7. The ground state energy of hydrogen atom is -13.6 eV. The kinetic and potential energies of the electron in this state is
 - a) 13.6 eV, - 27.2 eV
 - b) - 27.2 eV, 13.6 eV
 - c) -13.6 eV, - 27.2 eV
 - d) +13.6 eV, + 27.2 eV

8. Which of the following diode works in the absence of external bias?
(a) Photo-voltaic cell (b) LED (c) photodiode (d) None of the above
9. The set which represents the isotope, isobar and isotones respectively is
(a) (${}^2_1\text{H}$, H_1^3), (Au_{79}^{197} , Hg_{80}^{198}) and (He_2^3 , H_1^2)
(b) (He_2^3 , H_1^1), (Au_{79}^{197} , Hg_{80}^{198}) and (${}^1_1\text{H}$, H_1^3)
(c) (He_2^3 , H_1^3), (${}^2_1\text{H}$, H_1^3) and (Au_{79}^{197} , Hg_{80}^{198})
(d) (${}^2_1\text{H}$, H_1^3), (He_2^3 , H_1^3) and (Au_{79}^{197} , Hg_{80}^{198})
10. The short wavelength limits of the Lyman, Paschen and Balmer series in the hydrogen spectrum are denoted by λ_L , λ_P and λ_B respectively. Which of the following is true?
a) $\lambda_B > \lambda_L > \lambda_P$
b) $\lambda_B < \lambda_L < \lambda_P$
c) $\lambda_L < \lambda_B < \lambda_P$
d) $\lambda_L > \lambda_B > \lambda_P$

KENDRIYA VIDYALAYA NO 2 KASARAGOD

MCQ XII PHYSICS 2019-20 EXAM

1. Charge Q is distributed to 2 different metallic spheres having radii R and $2R$ such that both have equal surface charge density. Then charge on larger sphere is
a) $4Q/5$ b) $Q/5$ c) $3Q/5$ d) $5Q/4$

Ans: a

2. Mean free path of electron in a metal is 4×10^{-8} m. electric field which can give on an average 2eV energy to an electron in the metal will be in units V/m
a) 5×10^{-11} b) 8×10^{-11} c) 5×10^{-7} d) 8×10^7

Ans: c

3. A long straight wire of radius a carries a steady current. Current is uniformly distributed across its cross section. The ratio of the magnetic field at $a/2$ and $2a$ is
a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) 4 d) 1

Ans: d

4. An LCR series circuit is connected to a source of alternating current. At resonance applied voltage and current flowing in the circuit will have a phase difference of
a) $\theta/2$ b) θ c) $\theta/4$ d) 0

Ans: d

5. Refractive index and permeability of a medium are 1.5 and 5×10^{-7} . Relative permeability of the medium is nearly

a) 25 b) 15 c) 81 d) 6

Ans: d

6. In Young's double slit expt the intensity is I at a point where path difference is $\lambda/6$. Where λ is the wavelength of the light used. If I_0 denotes the maximum intensity then $I/I_0 =$

a) $3/4$ b) $1/2$ c) $3/2$ d) $2/3$

Ans: a

7. According to Einstein's photoelectric equation, the plot of the KE of the emitted electron from a metal versus frequency of the incident radiation gives a straight line whose slope

- a) Depends on the nature of metal used
- b) Depends on intensity of the radiation
- c) depends on both intensity and metal used
- d) same for all metals and independent of the intensity of the radiation

Ans: d

8. In the nuclear decay given below, the particle emitted in the sequence are

- a) $\alpha\beta\gamma$
- b) $\gamma\beta\alpha$
- c) $\beta\alpha\gamma$
- d) $\gamma\alpha\beta$

Ans. c

9. Light emitting diode

- a) is made from semiconducting compound GaAsphosphide
- b) emits light when forward biased
- c) Emits light when reverse biased.
- d) Is made from silicon or germanium

Write the correct alternative

- a) a only
- b) b only
- c) a, b
- d) c,d

Ans: a,b

10. Which of the following bonds produce light that reflects light in the visible regions whose electrical conductivity decrease with temperature and has high melting points

- a) metallic bonds
- b) Vanderwalls
- c) ionic bonding
- d) covalent bonding

Ans.a

KENDRIYA VIDYALAYA NO 2 KASARAGOD

MCQ SCIENCE X

1. Electrical resistivity of a given metallic wire depends upon
a) Length b) area of cross section c) shape d) nature of material

Ans :d

2. The most important safety method used for protecting home appliances from short circuiting or overloading is

a) earthing b) fuse c) stabilizer d) electric meter

Ans: b

3. Major problem in harnessing nuclear energy is how to

a) Split nuclei b) sustain reaction
c) dispose off spent fuel safely d) convert nuclear energy to electrical energy

Ans:c

4. You are given a convex lens of focal length 20cm . At what distance from the lens should you hold a candle flame to observe a virtual image of the flame?

a) 0-20cm b) 20- 40cm c) 40-60cm d) anywhere

Ans: a

5. Which of the following phenomena contributes significantly to the reddish appearance of the sun at sunrise and sunset?

a) Dispersion b) scattering c) total internal reflection d) reflection

Ans: b

KENDRIYA VIDYALAYA CRPF PALLIPURAM
MULTIPLE CHOICE QUESTIONS (PHYSICS)

1. A parallel plate capacitor is charged by a battery and the energy stored is U . The battery is now removed and the separation between the plates is doubled. The energy stored now is
a. $U/2$ b. U c. $2U$ d. $4U$
2. Electric charges $q, q, -2q$ are placed at the corners of an equilateral triangle. ABC of side l . The magnitude of electric dipole moment of the system is
a. ql b. $2ql$ c. $\sqrt{3} ql$ d. $4 ql$
3. Two wires of same length and same material has area of cross section in the ratio 3:1. They are joined in series. The resistance of the thicker wire is 10 ohm. The total resistance of the combination is
a. $5/2$ ohm b. 20 ohm c. 40 ohm d. 100 ohm
4. The magnetic field at the centre of a circular current carrying conductor of radius r is B_c . The magnetic field on its axis at a distance r from the centre is B_a . The value of $B_c: B_a$ is
a. $1:\sqrt{2}$ b. $1:2\sqrt{2}$ c. $2\sqrt{2}:1$ d. $\sqrt{2}:1$
5. The magnetic flux linked with a coil varies with time as $\phi = 3t^2 + 4t + 9$. The magnitude of the induced emf at 2 seconds is
a. 9V b. 16V c. 3V d. 4V
6. Inductance depends upon
a. geometry of the coil b. Intrinsic material properties c. Both a & b d. Neither a nor b
7. In an LCR circuit the voltage across each of the components L, C & R is 50V. The voltage across the CR combination is
a. 50V b. $50\sqrt{2}$ V c. 100V d. Zero
8. Time dependent electric and magnetic fields give rise to each other. Which laws give a quantitative expression of this statement
a. Ampere's circuital law b. Lorentz force c. Fleming's righthand rule d. Fleming's left hand rule
9. Two lenses when in contact produces a combination of power +10D. When they are 0.25m apart the power reduces to +6D. The focal length of the lenses are
a. 0.125m and 0.5m b. 0.125m and 1m c. 1m and 0.5m d. 0.125m and 0.4m
10. Yellow light is used in a single slit diffraction experiment with slitwidth of 0.6mm. If yellow is replaced by X rays then the observed pattern will reveal
a. the central maxm is narrower b. More number of fringes c. Less number of fringes d. No diffraction pattern

KENDRIYA VIDYALAYA ERNAKULAM REGION 2019-2020

KENDRIYA VIDYALAYA THRISSUR

CLASS XII

PHYSICS

MULTIPLE CHOICE QUESTIONS

- 1. In the direction of electric field , the electric potential**
 - a) Increases
 - b) decreases
 - c) remains constant
 - d) becomes zero
- 2. The drift velocity v_d varies with intensity of electric field according to**
 - a) $v_d \propto E$
 - b) $v_d \propto 1/E$
 - c) $v_d \propto E^2$
 - d) $v_d = \text{constant}$
- 3. A magnetic needle is kept in a non-uniform magnetic field. It experiences**
 - (a) a torque but not a force.
 - (b) neither a force nor a torque.
 - (c) a force and a torque.
 - (d) a force but not a torque.
- 4. A circular loop of radius R , carrying a current I , lies in x-y plane with its centre at the origin. The magnetic flux through x-y plane is**
 - a) Directly proportional to I
 - b) directly proportional to R
 - c) Directly proportional to R^2
 - d) zero
- 5. If the magnetic flux through a certain region is changing with time**
 - a) Energy must be dissipated as heat
 - b) An electric field must exist at the boundary
 - c) A current must flow around the boundary
 - d) An emf must exist around the boundary
- 6. A 100 mH coil carries a current of 1A. The energy stored in the coil in the form of magnetic field is**
 - a) 0.5 J
 - b) 1 J
 - c) 0.05 J
 - d) 0.1 J

7. Which radiations are used in the treatment of muscle ache
- a) IR
 - b) 2) UV
 - c) 3) Microwave
 - d) 4) X ray
8. Four lenses of focal lengths + 10 cm, +50 cm, + 100 cm and + 200 cm are available for making an astronomical telescope. To produce the largest magnification ,the focal length of the eyepiece should be
- a) + 10 cm
 - b) b) 50cm
 - c) c) 100 cm
 - d) d) 200 cm
9. The stopping potential when a metal with work function 0.6 eV is illuminated with light of 2 eV will be
- a) 1.4 eV
 - b) b) 2.8eV
 - c) c) 4.2eV
 - d) d) 0.7 eV
10. Depletion layer consists of
- a) Electrons
 - b) b)immobile ions
 - c) c) electrons
 - d) d) both electrons and waves

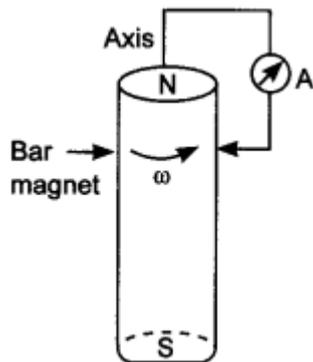
ANSWERS

1. b 2.a 3.c4.d 5d. 6.a 7.a 8.a 9.a 10. B

KV ADOOR SHIFT 1
CLASS- XII
PHYSICS

SET-1

1. A coil having 500 sq. loops of side 10 cm is placed normal to magnetic flux which increases at a rate of 1 T/s. The induced emf is
(a) 0.1 V
(b) 0.5 V
(c) 1 V
(d) 5 V
2. A cylindrical bar magnet is rotated about its axis (Figure). A wire is connected from the axis and is made to touch the cylindrical surface through a contact. Then



- (a) a direct current flows in the ammeter A.
(b) no current flows through the ammeter A.
(c) an alternating sinusoidal current flows through the ammeter A with a time period $T = 2\pi\omega$
(d) a time varying non-sinusoidal current flows through the ammeter.
3. The electric field associated with an e.m wave in vacuum is given by $E^{\vec{}} = 40 \cos (kz - 6 \times 10^8 t) i^{\vec{}}$, where E, Z and t are in volt/m, metre and seconds respectively. The value of wave vector K is
(a) 2 m^{-1}
(b) 0.5 m^{-1}
(c) 6 m^{-1}
(d) 3 m^{-1}
4. The temperature dependence of resistances of Cu and un doped Si in the temperature range 300-400 K, is best described by

(A) Linear increase for Cu, exponential increase for Si

(B) Linear increase for Cu, exponential decrease for Si

C) Linear decrease for Cu, linear decrease for Si

(D) Linear increase for Cu, linear increase for Si

5. The electric potential of earth is taken to be zero because earth is a good

(a) Insulator (b) conductor (c) semiconductor (d) dielectric

6. The wave front due to a source situated at infinity is

(a) spherical

(b) cylindrical

(c) planar

(d) circular

7. Two coherent monochromatic light beams of intensities I and $4I$ superimpose. The maximum and minimum possible intensities in the resulting beam are:

(a) $5I$ and I

(b) $5I$ and $3I$

(c) $3I$ and I

(d) $9I$ and I

8. In Young's double slit experiment, if the monochromatic source of yellow light is replaced by red light, the fringe width

(a) increases

(b) decreases.

(c) remains unchanged.

(d) the fringes disappear

9. Two slits in Young's double slit experiment have widths in the ratio $81 : 1$. The ratio of the amplitudes of light waves is

(a) $3 : 1$

(b) $3 : 2$

(c) $9 : 1$

(d) $6 : 1$

10. We combine two lenses, one is convex and other is concave having focal lengths f_1 and f_2 and their combined focal length is F . Combination of the lenses will behave like concave lens, if

(a) $f_1 > f_2$

(b) $f_1 = f_2$

(c) $f_1 < f_2$.

(d) $f_1 \leq f_2$

Answer key

1. Answer

$$(d) \because \epsilon = NA \frac{dB}{dt} = 500 \times \frac{1}{100} \times 1 = 5 \text{ V}$$

2. Answer A

3. Answer: a

Explanation:

(a) Wave vector, $k = W/C = 6 \times 10^8 / 3 \times 10^8 = 2 \text{ m}^{-1}$

4. Answer A

5. Answer B

6. Answer c

7. Answer c

(d) $9I$ and I ,

$$\text{Using, } I_{\max} = I_1 + I_2 + 2\sqrt{I_1 \times I_2} = 9I$$

$$I_{\min} = I_1 + I_2 - 2\sqrt{I_1 \times I_2} = I$$

8. Answer: A

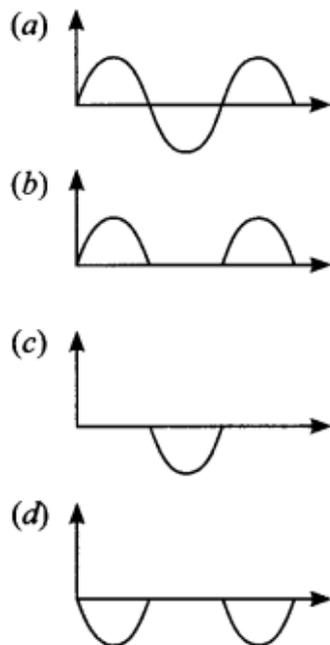
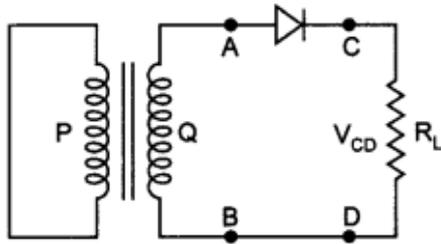
Explanation: (a) Increases, as fringe width $\beta \propto \lambda (\lambda_{\text{yellow}} < \lambda_{\text{ed}})$

9. Answer: C

10. Answer: A

SET-1

- The forbidden energy band gap in conductors, semiconductors and insulators are EG_1 , EG_2 and EG_3 respectively. The relation among them is
 - $EG_1 = EG_2 = EG_3$
 - $EG_1 < EG_2 < EG_3$
 - $EG_1 > EG_2 > EG_3$
 - $EG_1 < EG_2 > EG_3$
- In the half-wave rectifier circuit shown. Which one of the following waveforms is true for V_{CD} the output across C and D?



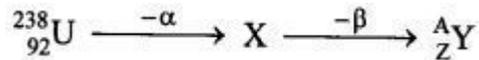
- The K.E. of the electron in an orbit of radius r in hydrogen atom is proportional to

| | |
|----------------------|----------------------|
| (a) $\frac{e^2}{r}$ | (b) $\frac{e^2}{2r}$ |
| (c) $\frac{2e^2}{r}$ | (d) $\frac{e^2}{3r}$ |

- The half-life of a radioactive nucleus is 3 hours. In 9 hours, its activity will be reduced to a factor of

- (a) $\frac{1}{9}$ (b) $\frac{1}{27}$
 (c) $\frac{1}{6}$ (d) $\frac{1}{8}$

5. In the disintegration series



the values of Z and A respectively will be

- (a) 92, 236 (b) 88, 230
 (c) 90, 234 (d) 91, 234
6. In a permanent magnet at room temperature.
 (a) Magnetic moment of each molecule is zero.
 (b) The individual molecules have non-zero magnetic moment which are all perfectly aligned.
 (c) Domains are partially aligned.
 (d) Domains are all perfectly aligned.
7. A paramagnetic sample shows a net magnetisation of 8 Am^{-1} when placed in an external magnetic field of 0.6 T at a temperature of 4K. When the same sample is placed in an external magnetic field of 0.2 T at a temperature of 16 K, the magnetisation will be
 (a) $32/3 \text{ Am}^{-1}$
 (b) $2/3 \text{ Am}^{-1}$
 (c) 6 Am^{-1}
 (d) 2.4 Am^{-1}
8. In an LCR-series ac circuit, the voltage across each of the component L, C and R is 50 V. The voltage across the LC-combination will be
 (a) 50 V
 (b) $50\sqrt{2}$ V
 (c) 100 V
 (d) zero
9. If coil is open, then L and R becomes
 (a) infinity, zero
 (b) zero, infinity
 (c) infinity, infinity.
 (d) zero, zero
10. Electromagnetic waves travelling in a medium having relative permeability $\mu_r = 1.3$ and relative permittivity $\epsilon_r = 2.14$. The speed of

electromagnetic waves in medium must be

- (a) $1.8 \times 10^8 \text{ ms}^{-1}$
- (b) $1.8 \times 10^4 \text{ ms}^{-1}$
- (c) $1.8 \times 10^6 \text{ ms}^{-1}$
- (d) $1.8 \times 10^2 \text{ ms}^{-1}$

Answer key physics

1. Answer: b

Explanation: In insulators, the forbidden energy gap is very large, in case of semiconductor it is moderate and in conductors the energy. Gap is zero.

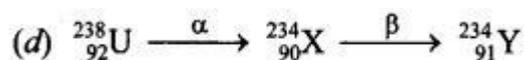
2. Answer b

3. Answer: b

4. Answer d

$$(d) \frac{A}{A_0} = \left(\frac{1}{2}\right)^{t/T} ; A = \left(\frac{1}{2}\right)^{9/3} A_0 = \frac{A_0}{8}$$

5. Answer d



6. Answer: c

Explanation:

(c) At room temperature, the permanent magnet retains ferromagnetic property for a long period of time.

7. Answer: B

8. Answer: d

Explanation:

(d) The voltage across L and C are out of phase. Hence the voltage across the LC combination is zero.

9. Answer: b

Explanation:

(b) No current flows through an open circuit so magnetic flux is zero and hence,

$L = 0$. Also as $I = 0$, so $R = \infty$.

10. Answer: a

Explanation: (a) speed of em wave

$$v = \frac{c}{\sqrt{\mu_r \epsilon_r}} = \frac{3 \times 10^8}{\sqrt{2.14 \times 1.3}}$$
$$= 1.8 \times 10^8 \text{ms}^{-1}$$

KENDRIYA VIDYALA IDUKKI

XII CLASS PHYSICS MCQ QUESTIONS

1. Two conducting spheres of radii 10 cm and 20 cm contain 900 μC of charge on each sphere. Now they are joined by a conducting wire. The amount of charge flown through the wire is

- (1) 300 μC (2) 600 μC (3) 400 μC (4) 200 μC

2. An electron field in a space moves in helical path. We can conclude that

- (1) Neither electric field nor magnetic field is present
(2) Only magnetic field should be present
(3) Magnetic field must be present and electric field may be present
(4) Both the fields must be present

3. The value of Bohr's magneton is

- (1) $9.24 \times 10^{-27} \text{ A}\cdot\text{m}^2$ (2) $9.27 \times 10^{-24} \text{ A}\cdot\text{m}^2$ (3) $9.72 \times 10^{-42} \text{ A}\cdot\text{m}^2$ (4) $9.42 \times 10^{-72} \text{ A}\cdot\text{m}^2$

4. Two small bar magnets apply a force F on each other. If the separation between the two magnets is doubled then the force they apply on each other is

- (1) $2F$ (2) $4F$ (3) $8F$ (4) $16F$

5. Two resistors of resistance R_1 and R_2 having $R_1 > R_2$ are connected in parallel. For equivalent resistance R , the correct statement is

- (1) $R > R_1 + R_2$ (2) $R_1 < R < R_2$
(3) $R_2 < R < (R_1 + R_2)$ (4) $R < R_1$

6. A series combination of two resistors 1Ω each is connected to a 12 V battery of internal resistance 0.4Ω . The current flowing through it will be

- (1) 3.5 A (2) 5 A
(3) 6 A (4) 10 A

7. In electromagnetic induction, the induced e.m.f. in a coil is independent of

- (1) Change in the flux (2) Time
(3) Resistance of the circuit (4) None of the above

8. The magnetic field in a coil of 100 turns and 40 square cm area is increased from 1 Tesla to 6 Tesla in 2 second. The magnetic field is perpendicular to the coil. The e.m.f. generated in it is

- (1) 10^4 V (2) 1.2 V
(3) 1.0 V (4) 10^{-2} V

9. A convex lens is made of three different materials parallel to the principal axis. For a small object placed on its axis, the number of images formed is Object

- (1) 1 (2) 3 (3) 4 (4) 5

10. How many photons of radiation of wavelength $\lambda = 5 \times 10^{-7}$ m must fall per second on a completely absorbing surface so that it experiences radiation force of 6.63×10^{-5} N?

- (1) 1.67×10^{18} (2) 2×10^{22} (3) 5×10^{22} (4) 3×10^{19}

KEY AND SOLUTIONS

1. Answer (1)

Charge 1800 μ C will be divided in 1 : 2 ratio. So charge on them are 600 μ C and 1200 μ C.

2. Answer (3)

3. Answer (2)

4. Answer (4)

$$\text{Force } r \propto 1/r^4$$

5. Answer (4)

6. Answer (2)

7. Answer (3)

8. Answer (3)

9. Answer (3)

10. Answer (3)

KENDRIYA VIDYALAYA IDUKKI

X CLASS PHYSICS MCQ

1. A ray of light is incident normally on a plane mirror. The angle of reflection will be
 - (a) 0°
 - (b) 90°
 - (c) Will not be reflected
 - (d) None of the above
2. A man runs towards a mirror at a speed 15 m/s . The speed of the image relative to the man is
 - (a) 15 ms^{-1}
 - (b) 30 ms^{-1}
 - (c) 35 ms^{-1}
 - (d) 20 ms^{-1}
3. Focal length of a plane mirror is
 - (a) Zero
 - (b) Infinite
 - (c) Very less
 - (d) Indefinite
4. A person sees his virtual image by holding a mirror very close to the face. When he moves the mirror away from his face, the image becomes inverted. What type of mirror he is using
 - (a) Plane mirror
 - (b) Convex mirror
 - (c) Concave mirror
 - (d) None of these
5. The index of refraction of diamond is 2.0, velocity of light in diamond in cm/second is approximately
 - (a) 6×10^{10}
 - (b) 3.0×10^{10}
 - (c) 2×10^{10}
 - (d) 1.5×10^{10}
6. The resistivity of iron is $1 \times 10^{-7} \text{ ohm-m}$. The resistance of a iron wire of particular length and thickness is 1 ohm . If the length and the diameter of wire both are doubled, then the resistivity in ohm-m will be
 - (a) 1×10^{-7}
 - (b) 2×10^{-7}
 - (c) 4×10^{-7}
 - (d) 8×10^{-7}
7. When the length and area of cross-section both are doubled, then its resistance
 - (a) Will become half
 - (b) Will be doubled
 - (c) Will remain the same
 - (d) Will become four times
8. Which of the following, the most suitable material for making permanent magnet is
 - (a) Steel
 - (b) Soft iron
 - (c) Copper
 - (d) Nickel
9. Magnetic lines of force
 - (a) Always intersect
 - (b) Are always closed
 - (c) Tend to crowd far away from the poles of magnet
 - (d) Do not pass through vacuum
10. The direction of line of magnetic field of bar magnet is

- (a) From south pole to north pole
- (b) From north pole to south pole
- (c) Across the bar magnet
- (d) From south pole to north pole inside the magnet and from north pole to south pole outside the magnet

ANSWERS

- 1.a
- 2.b
- 3.b
- 4.c
- 5.d
- 6.a
- 7.c
- 8.a
- 9.b
- 10.b

