

### **Important Short Question Answers**

Sr. No.	Chapter	Short Questions
12.	Electrostatics	12.1, 12.3, 12.5, 12.9
13.	Current Electricity	13.1, 3.2, 13.4, 13.5, 13.6, 13.8
14.	Electromagnetism	14.8, 14.9, 14.10, 14.11, 14.14, 14.15
15.	Electromagnetic Induction	15.1, 15.2, 15.5, 15.8, 15.10, 15.12, 15.14
16.	Alternating Current	16.1, 16.3, 16.5, 16.6, 16.9, 16.10
17.	Physics of Solids	17.1, 17.2, 17.3, 17.9, 17.10, 17.11
18.	Electronics	18.2, 18.4, 18.6, 18.7, 18.8
19.	Dawn of Modern Physics	19.1, 19.6, 19.10, 19.17, 19.18, 19.19
20.	Atomic Spectra	20.2, 20.4, 20.5, 20.7, 20.9
21.	Nuclear Physics	21.2, 21.8, 21.14, 21.17, 21.20

#### **Chapter 12**

- The potential is constant throughout a given region of space. Is the electrical field zero or non-zero in this region? Explain.
- How can you identify that which plate of a capacitor is positively charged?
- Electric lines of force never cross. Why?
- Do electrons tend to go to region of high potential or of low potential?

#### **Chapter 13**

- A potential difference is applied across the ends of a copper wire. What is the effect on the drift velocity of free electrons by
  - increasing the potential difference
  - decreasing the length and the temperature of the wire
- Do bends in a wire affect the electrical resistance? Explain.
- Why does the resistance of a conductor rise with temperature?
- What are the difficulties in testing whether the filament of a lighted bulb obeys Ohm's law?
- Is the filament resistance lower or higher in a 500 W, 220 V light bulb than in a 100 W, 220 V bulb?
- Explain why the terminal potential difference of a battery decreases when the current drawn from it is increased?

#### **Chapter 14**

- Why does the picture on a TV screen become distorted when a magnet is brought near the screen?
- Is it possible to orient a current loop in a uniform magnetic field such that the loop will not tend to rotate? Explain.
- How can a current loop be used to determine the presence of a magnetic field in a given region of space?
- How can you use a magnetic field to separate isotopes of chemical element?
- Why the resistance of an ammeter should be very low?

- Why the voltmeter should have a very high resistance?

## Chapter 15

- Does the induced emf in a circuit depend on the resistance of the circuit? Does the induced current depend on the resistance of the circuit?
- A square loop of wire is moving through a uniform magnetic field. The normal to the loop is oriented parallel to magnetic field. Is a emf induced in the loop? Give reasons.
- Does the induced emf always act to decrease the magnetic flux through a circuit?
- How would you position a flat loop of wire in a changing magnetic field so that there is no emf induced in the loop?
- Show that  $\mathcal{E}$  and  $\frac{\Delta\phi}{\Delta t}$  have same units.
- Can a D.C. motor be turned into a D.C. generator? What changes required to be done?
- Can an electric motor be used to drive an electric generator with the output from the generator being used to operate the motor?

## Chapter 16

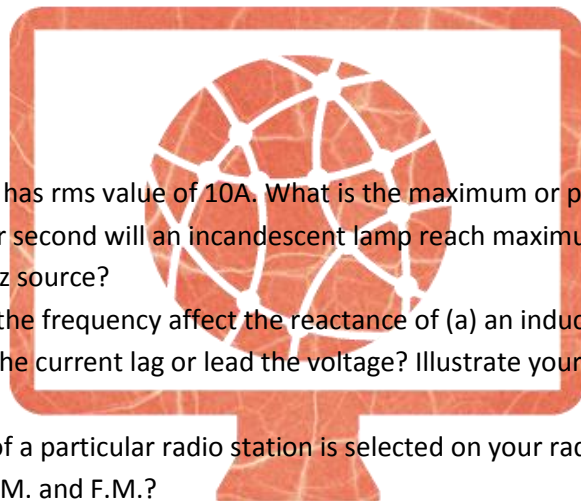
- A sinusoidal current has rms value of 10A. What is the maximum or peak value?
- How many times per second will an incandescent lamp reach maximum brilliance when connected to a 50 Hz source?
- How does doubling the frequency affect the reactance of (a) an inductor (b) a capacitor?
- In a R-L circuit, will the current lag or lead the voltage? Illustrate your answer by a vector diagram.
- How the reception of a particular radio station is selected on your radio set?
- What is meant by A.M. and F.M.?

## Chapter 17

- Distinguish between crystalline, amorphous and polymeric solids.
- Define stress and strain. What are their SI units? Differentiate between tensile, compressive and shear modes of stress and strain.
- Define modulus of elasticity. Show that the units of modulus of elasticity and stress are the same. Also discuss its three kinds.
- Write a note on superconductors.
- What is meant by para, dia and ferromagnetic substances? Give examples for each.
- What is meant by hysteresis loss? How is it used in the construction of a transformer?

## Chapter 18

- What is the net charge on a n-type or p-type substance?



Daniyal Blogs



- Why charge carriers are not present in the depletion region?
- Why ordinary silicon diodes do not emit light?
- Why a photo diode is operated in reverse biased state?
- Why is the base current in a transistor very small?

### Chapter 19

- What are measurements on which two observers in relative motion always agree?
- As a solid is heated and begins to glow, why does it first appear red?
- Which has the lower energy quanta? Radiowaves or X-rays.
- Photon A has twice the energy of photon B. What is the ratio of the momentum of A to that of B?
- Why don't we observe a Compton Effect with visible light?
- Can pair production take place in vacuum? Explain.

### Chapter 20

- What is meant by a line spectrum? Explain, how line spectrum can be used for the identification of elements?
- How can the spectrum of hydrogen contain so many lines when hydrogen contains one electron?
- Is energy conserved when an atom emits a photon of light?
- What do you mean when we say that the atom is excited?
- What are the advantages of lasers over ordinary light?

### Chapter 21

- Why are heavy nuclei unstable?
- A particle which produces more ionization is less penetrating. Why?
- What factors make a fusion reaction difficult to achieve?
- If someone swallowed an  $\alpha$ -source and a  $\beta$ -source, which would be the more dangerous to you? Explain why?
- How can radioactivity help in the treatment of cancer?

