Answer Key

Self Induction

1) b
2) b
3) b

When AC passes through a solenoid, a changing magnetic field is generated around it. Due to this an induced emf is generated inside the solenoid. This induced emf is in a direction opposite to that applied on the coil. Hence this is a back emf This back emf reduces the effective voltage in the circuit.

Inductor

1) Inductor
2) Inductors are used to reduce current in a circuit to the desired value without the loss of power.
3) No, When resistors are used energy loss takes place in the form of heat.
4) Due to the absence of back emf there is no self induction takes place in DC circuits.

Chapter 3

Electromagnetic induction

Topic

Power transmission and distribution

Answer Key

1) Step down transformer

2) A-1 1kv,
B-220kv,
C-400kv or 110kv,
D-11kv, E-400v or 230v

3) The crow sitting in a single line does not get electric shock because there is no potential difference.

4) Low Voltage , Transmission loss
Transmit in high voltage

5) (a) 4 lines

(b) 230 V between the phase line and the neutral line
400V between two phase lines

(c) One phase line and one neutral line

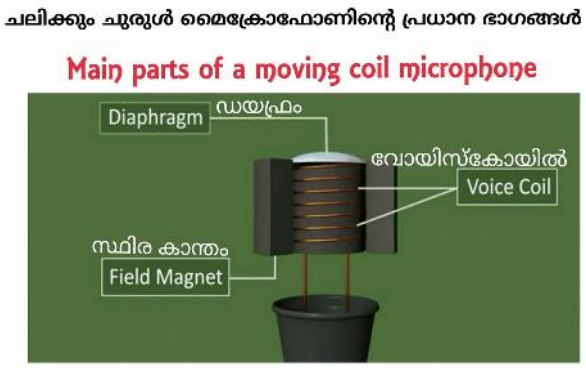
MALAPPURAM EDUCATIONAL DISTRICT

FIRST BELL SUPPORTING MATERIAL

PHYSICS

ചലിക്കും ചുരുൾ മൈക്രോഫോൺ (Moving Coil Microphone)

Answers :



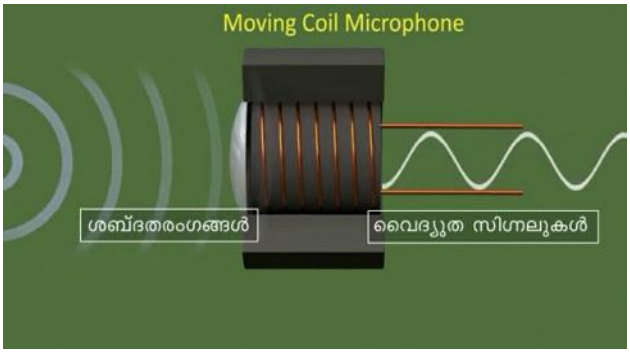
1.

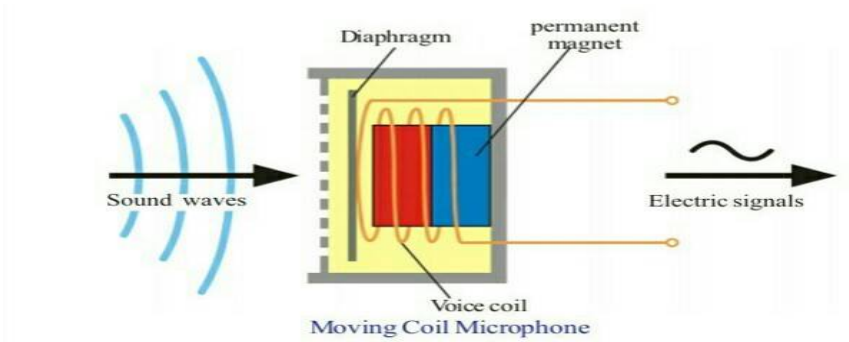
Diaphragm,Voice coil,Permenant magnet.

2. Voice coil

3.

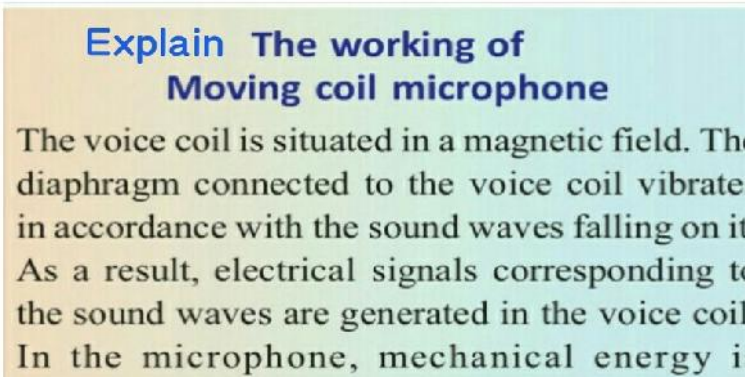
Diaphragm vibrates





4. Voice coil also vibrates.

5.



The diaphragm vibrates with sound waves

Voice coil vibrates in the magnetic field

Electrical signals are produced in the voice coil.

Different types of Microphones

In addition to moving coil microphones, four more types of microphones are in use.

1. **Carbon microphones**

   The main part of this is a small box called button containing carbon granules. It is designed in such way that a thin metal disc called the diaphragm presses against the button. The diaphragm vibrates in accordance with the sound waves and the corresponding electrical variations are produced. Carbon microphones are mainly used in telephones.

2. **Crystal and ceramic microphones**

   The main part of this type of microphone is piezoelectric crystals. Piezoelectric crystals can generate electricity when they are subjected to pressure. Ham radios use crystal and ceramic microphones.

3. **Ribbon microphones**

   The main part is a metallic ribbon suspended from within a magnetic field. When sound waves fall on the metal ribbon, the ribbon vibrates accordingly inside the magnetic field. The vibration of the ribbon in the magnetic field produces the flow of electricity.

4. **Capacitor microphones**

   They are also known as condenser microphones. The main part of it is two thin metal discs arranged side by side. The flexible plate in the front works as a diaphragm. The plate at the back is not capable of motion. Sound waves vibrate the front plate. This causes a change in the current through the capacitor. This type of microphone is used in hearing aids.

6.

CARBON MICROPHONE

CRYSTAL & CERAMIC MICROPHONE

RIBBON MICROPHONE