

Physics (D+ Questions)

1) Name the materials used to make the given parts?

- a) Heating Coil - **Nichrome**
- b) Fuse wire - **Alloy of Tin and Lead**
- c) Filament - **Tungsten**

2) Write the working principle of given devices?

- a) Moving coil Loudspeaker - **Motor principle**
- b) DC Motor - **Motor principle**
- c) Generator- **Electromagnetic Induction**
- d) Moving coil Microphone- **Electromagnetic Induction**
- e) Transformer - **Electromagnetic Induction (Mutual Induction)**
- f) Inductor -**Electromagnetic Induction (Self Induction)**

3) Write the energy changes taking place in the given devices?

- a) Electric Heater - **Electrical energy is converted to Heat energy.**
- b) Electric Iron- **Electrical energy is converted to Heat energy**
- c) Electric Bulb - **Electrical energy is converted to Light energy**
- d) Moving coil Microphone - **Sound energy is converted to Electrical energy**
- e) Moving coil Loudspeaker - **Electrical energy is converted to Sound energy**
- f) DC Motor - **Electrical energy is converted to Heat energy**
- g) Generator -**Mechanical energy is converted to Electrical energy.**

4) Give the features of given materials?

Nichrome -	<ul style="list-style-type: none"> • High resistivity • High melting point
Tungsten -	<ul style="list-style-type: none"> • High resistivity • High melting point
Fuse wire -	<ul style="list-style-type: none"> • Low melting point

5) Write the uses of each ones?

Plane mirror -	<ul style="list-style-type: none"> • To observe our face.
Convex mirror-	<ul style="list-style-type: none"> • Rear view mirror
Concave mirror -	<ul style="list-style-type: none"> • Shaving mirror • Make up mirror • Mirror used by Dentists.
Convex lens -	<ul style="list-style-type: none"> • To rectify the eye defects Hypermetropia and Presbyopia.
Concave lens -	<ul style="list-style-type: none"> • To rectify the eye defect Myopia.

6) Name the phenomenon behind each ones?

- a) Rainbow- **Dispersion of light**
- b) Sky appears blue – **Scattering of light**
- c) Sun appears red during sunrise and sunset -**Scattering of light**
- d) Rain drops appears like glass rode - **Persistence of vision**
- e) Newton's colour disc appears white, when it rotated fast - **Persistence of vision**

- f) Image formation in mirrors – **Reflection of light**
- g) Image formation in Lenses -**Refraction**
- h) Stars are twinkling - **Atmospheric Refraction**
- i) Path of light is visible through fog - **Tyndal Effect**

7) Write the answer of given questions?

- a) Write the circumstances, that causes excess current in a circuit?
Over loading, Short circuit
- b) Most abundant fossil fuel on the earth - **Coal**
- c) Shape of a rainbow, when it is watching from an Aeroplane - **Circle**
- d) Features of real images – **Inverted, Can be formed on a screen.**
- e) Features of virtual images - **Erect, Cannot be formed on a screen.**
- f) Name the mirror, which gives real images – **Concave.**
- g) Name the Lens, which gives real images – **Convex.**

8) Write the main component of each fuel?

- a) LPG - **Butane**
- b) CNG - **Methane**
- c) LNG -**Methane**
- d) Biogas – **Methane, Carbon dioxide**
- e) Coal- **Carbon**

9) Write the full form?

- a) LPG – **Liquefied Petroleum Gas**
- b) LNG – **Liquefied Natural Gas**
- c) CNG – **Compressed Natural Gas.**
- d) LED – **Light Emitting Diode**

10) Name the law, for finding each ones?

- a) To calculate the heat produced in a current carrying conductor - **Joule's Law**
- b) To find the direction of the magnetic field formed around a current carrying conductor-
Right Hand Thumb Rule of James Clark Maxwell.
- c) To find the direction of motion (direction of force) of a current carrying conductor, which is placed in a magnetic field.- **Fleming's Left Hand Rule**
- d) To find the direction of induced current produced by electromagnetic induction –
Fleming's right hand rule.

11) Write the answer of given questions?

- a) Working principle of Hydrogen bomb - **Nuclear fusion.**
- b) Working principle of Atom bomb - **Nuclear fission.**
- c) Voltage at which electricity is generated at the power station – **11 KV (11000 V)**
- d) Voltage at which power is transmitted – **220 KV**
- e) Device used to increase AC voltage without any power loss - **Step up transformer**
- f) Device used to decrease AC voltage without any power loss - **Step down transformer.**
- g) Distribution transformer - **Step down transformer..**
- h) How to reduce transmission loss? **By increasing the voltage and there by decreasing the current.**

12) Name the main parts of each devices?

- a) DC Motor - **Field magnet, Armature, Split Rings, Brushes.**
- b) DC Generator- **Field magnet, Armature, Split Rings, Brushes.**
- c) AC Generator- **Field magnet, Armature, Slip Rings, Brushes.**

d) Moving coil Microphone - **Permanent magnet, Voice coil, Diaphragm.**

e) Moving coil Loudspeaker - **Permanent magnet, Voice coil, Diaphragm.**

13) Images formed by a Convex lens

Position of Object	Position of Image	Features of Image
At Infinity	At F	Real, Inverted, Diminished.
Beyond 2F	Between 2F and F	Real, Inverted, Diminished.
At 2F	At 2F	Real, Inverted, Same size.
Between 2F and F	Beyond 2F	Real, Inverted, Magnified.
At F	At Infinity	Real, Inverted, Magnified
Between F and Lens	At the same side of the object.	Virtual, Erect, Magnified.

14) Features of image, formed by a convex mirror – **Virtual, Erect, Diminished.**

15) Features of image, formed by a Plane mirror - **Virtual, Erect, Same size.**

16) Features of image, formed by a Concave lens- **Virtual, Erect, Diminished.**

17) Uses of Total internal reflection - **Optical fibre cable and Endoscope.**

18) Red light is given to signal lamps – **Red can travel long distances without scattering, because of its high wavelength.**

19) **Green Energy** -energy produced from natural sources that does not cause environmental pollution

20) **Brown Energy**- The energy produced from non renewable sources such as petroleum and coal, and the nuclear energy.

Green Energy	Brown Energy
<ul style="list-style-type: none">• Sun• Wind• Waves• Hydro Electric Power• Biomass• Biogas• Geothermal Energy	<ul style="list-style-type: none">• Fossil fuels• Nuclear Energy• Petrol• Diesel• Coal• Natural gas

21) Near point of healthy vision - **25 cm**

22) Far point of healthy vision – **Infinity.**

23) Far point of a person having Myopia - **Less than Infinity**

24) Near point of a person having Hypermetropia – **Greater than 25 cm**

25) Laws of Reflection

- **Angle of incidence (i) and angle of reflection (r) are equal.**
- **The incident ray, reflected ray and normal to the surface are in the same plane.**

26) Mirror equation - $1/f = 1/u + 1/v$

27) Lens equation - $1/f = 1/v - 1/u$

28) $\sin i / \sin r = a$ constant, name the law associated with it ? **Snell's Law**

29) Advantages of LED bulbs?

No energy loss in the form of heat, Doesn't cause Environmental pollution.

40) Why filament bulbs are evacuated? **To avoid the oxidation of filament.**

41) Why filament bulb is filled with Nitrogen or inert gas? **To reduce the vaporisation of the filament.**