

Important Questions

Electrical Engineering

PART A

1. Distinguish conventional and non conventional energy sources
2. Mention the advantages of high voltage transmission
3. Classify steam turbines used in thermal power plant
4. What is the use of condenser in thermal power plant?
5. What are the components of nuclear power generating station?
6. Mention any four types of earthing procedures.
7. What is the function of fuse in an electrical circuit?
8. List out any four types of fuses used
9. Mention the advantages of insulators in a power system.
10. List out the practical transmission and distribution Voltage levels

PART B

1. Draw and explain the schematic arrangements of thermal power plant
2. List out the differences between under-ground and over-head lines of power transmission.
3. Explain the various components of distribution system.
1. Draw and explain the schematic arrangement of hydro-electric power plant
2. How the wind energy is converted into electrical energy? Explain in detail.
3. State the advantages and disadvantages of nuclear power plant.
1. With neat cross sectional view explain pipe earthing method
2. What are the safety precautions to be followed while working with electricity.?
3. Draw the single line diagram of power system and mention the different levels of voltages are associated with generation, transmission and distribution.
1. Explain the construction and working principle of HRC fuse
2. Give the elementary first aid steps to be followed against electrical shock.
3. Distinguish Conductor and Insulator materials

PART-A

① Distinguish conventional and non-conventional energy sources.

Conventional or Non-renewable energy sources	Non-Conventional or Renewable energy sources
<p>(i) These sources are available in nature during particular periods which is uncertain.</p> <p>(ii) They cause pollution to atmosphere.</p> <p>(iii) Their efficiency is comparatively high.</p> <p>(iv) Their initial cost is comparatively high.</p>	<p>(i) These sources are abundantly available in nature.</p> <p>(ii) They do not pollute the atmosphere.</p> <p>(iii) Their efficiency is comparatively less.</p> <p>(iv) Their initial cost is comparatively less.</p>

② Mention the advantages of high voltage transmission.

① For a given amount of power, the higher the voltage, the lower the current. This reduces the voltage drop along the transmission line and hence it reduces energy losses.

② The size of the conductors gets reduced and hence it is economically cheaper.

③ classify steam turbines used in thermal power plant.

Steam turbines used in thermal power plant are classified into two types.

- (i) Impulse turbine
- (ii) Reaction turbine.

④ What is the use of Condensers in thermal power plant?

The Condenser is used to improve the plant efficiency, by converting the expanded steam coming out of turbine, into water. This water can be used as feed water to the boiler.

⑤ What are the components of nuclear power generating station?

- (i) Nuclear reactor
- (ii) Heat exchanger (Steam generator)
- (iii) Steam turbine
- (iv) Alternator
- (v) Cooling water circuit

⑥ Mention any four types of earthing procedures.

- (i) Plate earthing
 - (ii) Pipe earthing
 - (iii) Earthing through water main
 - (iv) Horizontal strip earthing
 - (v) Rod earthing.
- (ANY FOUR)

⑦ What is the function of fuse in an electrical circuit?

The function of fuse in an electrical circuit is to protect the equipment from the effects of excessive high currents such as overheating, short circuiting, firing, damage etc.

⑧ List out any four types of fuses used.

- (i) expulsion fuse (ANY FOUR)
- (ii) Rewirable fuse or semienclosed fuse
- (iii) Cartridge fuse
- (iv) Drop-out fuse
- (v) Liquid fuse
- (vi) Open fuse
- (vii) Striker fuse
- (viii) Switch fuse
- (ix) HRC fuse

⑨ Mention the advantages of insulators in a power system.

(i) Insulators provide necessary insulation between line conductors and supports.

(ii) It prevent the flow of any leakage current from the conductors to earth.

9) Mention the advantages of high voltage transmission.

i) The line losses are inversely proportional to the square of voltage and power factor. So line losses are less.

ii) For constant losses, the volume of copper required is inversely proportional to the square of the voltage and power factor. Hence, the Copper required is much less for high voltage transmission.

iii) Line efficiency is very high for high voltage transmission.

iv) Percentage line drop is very small for the high voltage transmission.

10) List out the practical transmission and distribution voltage levels.

Transmission voltage levels:

Primary transmission: 66 kV, 132 kV, 220 kV upto 400 kV.

Secondary transmission: 11 kV, 22 kV or 33 kV.

Distribution voltage levels:

Primary distribution: 6.6 kV or 11 kV.

Secondary distribution: 230V and 400V.