Unit-I

Electric Heating

1. Which of the following is an advantage of electric heating?

A) Produces smoke and ash
B) Low efficiency
C) Clean and pollution-free operation
D) Requires large storage space for fuel

Answer: C) Clean and pollution-free operation

2. Electric heating has an efficiency of approximately:

A) 30%
B) 50%
C) 70%
D) Nearly 100%

Answer: D) Nearly 100%

3. Which of the following is a method of electric heating?

A) Resistance Heating
B) Induction Heating
C) Dielectric Heating
D) All of the Above

Answer: D) All of the Above

4. In resistance heating, heat is produced due to:

A) Electromagnetic induction
B) Eddy currents
C) Dielectric losses
D) Joule's law (I^2R loss)

Answer: D) Joule's law (I^2R loss)

5. The heat produced in a resistance heater is proportional to:

A) I^2Rt
B) Vt
C) IR
D) R/t

Answer: A) I^2Rt

6. Which material is commonly used as a heating element?

A) Copper
B) Aluminum
C) Nichrome
D) Silver

Answer: C) Nichrome

7. An electric iron works on the principle of:

A) Dielectric heating
B) Induction heating
C) Resistance heating
D) Arc heating

Answer: C) Resistance heating

8. Induction heating is based on:

A) Electrostatic induction
B) Electromagnetic induction
C) Chemical reaction
D) Resistance effect

Answer: B) Electromagnetic induction

9. In induction heating, heat is produced mainly by:

A) Eddy currents
B) Chemical energy

C) Radiation only
D) Solar energy

Answer: A) Eddy currents

10. Induction heating is commonly used for:

A) Drying wood
B) Cooking and metal melting
C) Water purification
D) Battery charging

Answer: B) Cooking and metal melting

11. Which heating method is best suited for melting metals?

A) Dielectric Heating
B) Resistance Heating
C) Induction Heating
D) Infrared Heating

Answer: C) Induction Heating

12. Dielectric heating is mainly used for:

A) Conducting materials
B) Insulating materials
C) Metals only
D) Magnetic materials only

Answer: B) Insulating materials

13. Dielectric heating is also known as:

A) Resistance Heating
B) High-Frequency Heating
C) Arc Heating
D) Infrared Heating

Answer: B) High-Frequency Heating

14. In dielectric heating, heat is produced due to:

A) Eddy currents
B) Hysteresis loss
C) Dielectric losses in the material
D) Friction

Answer: C) Dielectric losses in the material

15. Which frequency range is generally used in dielectric heating?

A) 50 Hz
B) 100 Hz
C) Radio Frequency (RF) Range
D) DC Supply

Answer: C) Radio Frequency (RF) Range

16. Which of the following is an application of dielectric heating?

A) Steel melting
B) Welding rails
C) Drying wood and plastics
D) Electric cooking

Answer: C) Drying wood and plastics

17. Which heating method provides the fastest heating of metal surfaces?

A) Induction Heating
B) Dielectric Heating

C) Resistance Heating
D) Solar Heating

Answer: A) Induction Heating

18. One major advantage of electric heating over conventional heating is:

A) Higher maintenance
B) Poor temperature control
C) Precise temperature control
D) More pollution

Answer: C) Precise temperature control

19. Which of the following heating methods does not require direct contact between the heater and the workpiece?

A) Resistance Heating
B) Induction Heating
C) Electric Iron Heating
D) Water Heating Element

Answer: B) Induction Heating

20. The unit of electrical energy consumed in electric heating is:

A) Volt
B) Ampere
C) Kilowatt-hour (kWh)
D) Ohm

Answer: C) Kilowatt-hour (kWh)

Fill in the Blanks – Electric Heating (15 Questions with Answers)

1. **Electric heating is preferred because it provides _____ temperature control.**
   Answer: precise
2. **One major advantage of electric heating is its _____ efficiency.**
   Answer: high
3. **Electric heating is free from _____ pollution at the point of use.**
   Answer: smoke
4. **In resistance heating, heat is produced according to _____ law.**
   Answer: Joule's
5. **The heating element used in resistance heating generally has _____ resistance.**
   Answer: high
6. **Nichrome is a commonly used material for _____ heating elements.**
   Answer: resistance
7. **In induction heating, heat is generated by _____ currents induced in the workpiece.**
   Answer: eddy
8. **Induction heating works on the principle of _____ induction.**
   Answer: electromagnetic
9. **The frequency used in induction heating is generally _____ than the supply frequency.**
   Answer: higher
10. **Dielectric heating is mainly used for heating _____ materials.**
    Answer: insulating

11. **In dielectric heating, heat is produced due to dielectric _____.**
    Answer: losses

12. **Plywood, plastics, and wood are commonly heated using _____ heating.**
    Answer: dielectric

13. **Resistance heating can be classified into direct and _____ resistance heating.**
    Answer: indirect

14. **Electric heating systems require less _____ compared to conventional heating systems.**
    Answer: maintenance

15. **The absence of combustion products makes electric heating a _____ method of heating.**
    Answer: clean

Unit-II

Electric Welding and Electrolysis

1. Electric welding is a process used to:

A) Separate metals
B) Join two or more metal pieces permanently
C) Measure resistance
D) Generate electricity

Answer: B) Join two or more metal pieces permanently

2. The equipment used to supply power for welding is called:

A) Transformer
B) Welding Machine
C) Alternator
D) Rectifier Only

Answer: B) Welding Machine

3. In resistance welding, heat is generated due to:

A) Arc formation
B) Chemical reaction
C) I^2R losses at the contact surfaces
D) Solar radiation

Answer: C) I^2R losses at the contact surfaces

4. Which of the following is a type of resistance welding?

A) Spot Welding
B) Seam Welding
C) Projection Welding
D) All of the Above

Answer: D) All of the Above

5. Arc welding uses:

A) Electrostatic field
B) Electric arc between electrode and workpiece
C) Magnetic field only
D) Chemical heating only