Question 17. Which sources produce alternating current?
Solution:
The sources which produce alternating current is a permanent magnet called the field magnet, armature, slip ring and carbon brushes. After every half rotation the polarity of the current in the respective arms changes. Such a current, Which changes direction after equal intervals of time, is called an alternating current.

Question 18. A rectangular coil of copper wires is rotated in a magnetic field. The direction of the induced current changes once in each:
(a) Two revolutions
(b) One revolution
(c) Half revolutions
(d) One-fourth revolutions
Solution:
b) One revolution.

Question 19. Name two safety measures commonly used in electric circuits and appliances.
Solution:
The use of an electric fuse prevents the electric circuits and appliance from a possible damage by passing the flow of unduly high electric current. The Joule heating that takes place in the fuse melts it to break the electric circuit.

Question 20. An electric oven of 2 KW power rating is operated in a domestic electric circuit (220 V) that has a current rating of 5 A. What result do you expect? Explain.
Solution:
V = 220 V, I = 5 A
Power, P = VI
P = 220 × 5
P = 1100 W
Therefore, power P = 1100 W = 1.1 KW
Therefore, an electric oven of 2 KW power rating cannot be operated in a domestic electric circuit (220 V) that has a current rating of 5 A because electric oven has higher power than the power of the electric circuit.

Question 21. What precaution should be taken to avoid the overloading of domestic electric circuits?
Solution:
Fuse is the most important safety device, to avoid the overloading of domestic electric circuits.
Too many appliances should not be connected to a single socket.

Question 22. Which of the following correctly describes the magnetic field near a long straight wire?
(a) The field consists of straight lines perpendicular to the wire.
(b) The field consists of straight lines parallel to the wire.
(c) The field consists of radial lines originating from the wire.
(d) The field consists of concentric circles centred on the wire.
Solution:
(d) The field consists of concentric circles centred on the wire.

Question 23. The phenomenon of electromagnetic induction is
(a) the process of charging a body.
(b) the process of generating magnetic field due to a current passing through a coil.
(c) producing induced current in a coil due to relative motion between a magnet and the coil.
(d) the process of rotating a coil of an electric motor.
Solution:
(c) producing induced current in a coil due to relative motion between a magnet and the coil.

Question 24. The device used for producing electric current is called a
(a) generator.
(b) galvanometer.
(c) ammeter.
(d) motor.
Solution:
(a) generator.

********** END **********