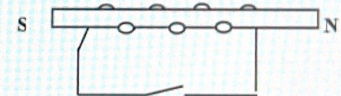


- c) There is no change in the induced emf.
- The flux through a coil changes from $4 \times 10^{-5} \text{ wb}$ to $5 \times 10^{-5} \text{ wb}$ in 0.1 sec. What emf is induced in this coil?
 - $5 \times 10^{-4} \text{ V}$
 - $4 \times 10^{-4} \text{ V}$
 - $1 \times 10^{-4} \text{ V}$
 - None of the above
 - A flux of $4 \times 10^{-5} \text{ wb}$ is maintained through a coil for 0.5 sec. What emf is induced in this coil by this flux?
 - $8 \times 10^{-5} \text{ V}$
 - $4 \times 10^{-5} \text{ V}$
 - $2 \times 10^{-5} \text{ V}$
 - No emf is induced in this coil.
 - A coil lies flat on a table top in a region where the magnetic field vector points straight up. The magnetic field vanishes suddenly. When viewed from above, what is the sense of the induced current in this coil as the field fades?
 - The induced current flows counterclockwise.
 - The induced current flows clockwise.
 - There is no induced current in this coil.
 - The current flows clockwise initially, and then it flows counterclockwise before stopping.
 - A bar magnet is positioned inside a coil. In the following, "work" refers to any *work* done as a consequence of the fact that the bar is magnetic. If the bar is suddenly pulled out of the coil
 - no work will be done, independent of whether or not the switch is closed
 - more work will be done if the switch is open.
 - more work will be done if the switch is closed.
 - equal (non-zero) amounts of work will be done whether or not the switch is open.
 - whether the work done is positive or negative depends on whether the magnet is pulled out the right or left end of the coil.
 - A generator coil rotates through 60 revolutions each second. The frequency of the induced emf is
 - 30 Hz.
 - 60 Hz.
 - 20 Hz.
 - cannot be determined from the information given.
 - The cross-sectional area of an adjustable single loop is reduced from 1 m^2 to 0.25 m^2 in 0.1 sec. What is the average emf that is induced in this coil if it is in a region where $B = 2 \text{ T}$ upward and the coil's plane is perpendicular to B ?
 - 12 V
 - 15 V
 - 18 V
 - 21 V



16. The primary of a transformer has 100 turns and its secondary has 200 turns. If the power input to the primary is 100 W, we can expect the power output of the secondary to be (neglecting frictional losses)
- a) 50 w b) 100 w c) 200 w d) None of the above.
17. The primary of a transformer has 100 turns and its secondary has 200 turns. If the input voltage to the primary is 100 V, we can expect the output voltage of the secondary to be
- a) 50 V
b) 100 V
c) 200 V
d) None of the above.
18. The primary of a transformer has 100 turns and its secondary has 200 turns. If the input current at the primary is 100 A, we can expect the output current at the secondary to be
- a) 50 A b) 100 A
c) 200 A d) None of the above.
19. 2 A in the 100 turn primary of a transformer causes 14 A to flow in the secondary? How many turns are in the secondary?
- a) 700 b) 114 c) 14 d) 4
20. 5 A at 110 V flows in the primary of a transformer. Assuming 100% efficiency, how many amps at 24 V can flow in the secondary?
- a) 1.1 A b) 4.6 A c) 5 A d) 23 A
21. The rod, of length 1 m, in the diagram below is moving at a speed of 15 m/s through a B field of strength 0.05 T.
- a) What is the direction of the induced current in the loop as seen from above?
- CW CCW NO CURRENT
- b) Determine the emf induced in the loop of wire.