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5. Ans For a conductor, Gauss's law gives zero enclosed charge within the conductor. Hence electric field inside of the charged conductor is zero.

When a positive charge is placed near the conductor surface, then due to field produced by charge, it induces field the conductor.

When charge $+q$ is placed in cavity, $-q$ charge will be induced due to polarization on the inner surface of the cavity.

Since electric field is zero inside the conductor, from Gauss's law, for the electric field to be zero, the enclosed charge must be zero.

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In order for the enclosed charge to be zero, charges on the outer surface of the conductor must be positive and that is equal to $+q$.

Hence, charge on the outer surface of the conductor will be $+q$.