

## Assignment-1

Q1) What do you think are the thought processes through which Oersted went through that made him to believe so strongly that there was a relationship between electricity and magnetism? Finally, how he demonstrated the relationship. *[Write in clear handwriting in not more than ten sentences]*

Q2) Watch carefully the video demonstrating the Arago's disc. Explain why the disc made of a non-magnetic material rotates, while the permanent magnets are rotated in close proximity to it – more importantly try to explain why the disc is experiencing a drag (braking action) so that it stops more or less immediately when the rotating magnets are also stopped from movement abruptly. *[Write in clear handwriting in not more than ten sentences]*

Q3) View the movie, *Shock and Awe* from 14.51 to 18.38 minutes, and answer the following:

- 1) How a 'mistake' was responsible for the invention of Layden jar or a modern capacitor?
- 2) Explain how the water in the Layden jar gets charged from the Hoksbeys' generator, especially showing the path being followed by the charges from the generator to the jar (you may draw a simple schematic diagram to make your point).
- 3) The narrator at the end is mentioning that the electrician-philosophers came to know that more the charge being stored in the jar, more the shock they would receive while holding the jar with one hand and touching the metallic terminal of the Layden jar with the other hand. Explain this issue by providing a supporting diagram.

*[Write in clear handwriting in not more than fifteen sentences]*