# Adda 247

# WELCOME TO Adda 2477

"If there is no struggle, there is no progress."— Frederick Douglass



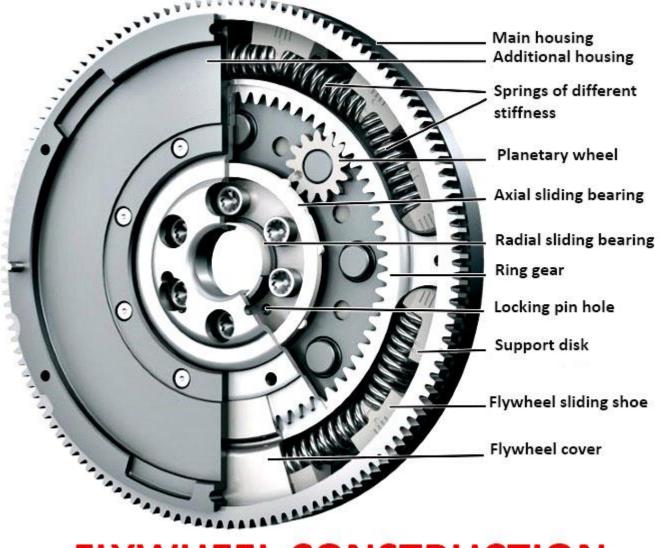
### Index:- <u>TOM – Theory of Machine</u>

- 1) Flywheel
- 2) IC Engine
- 3) Need of Flywheel in ICE
- 4) Torque
- 5) Turning Momemt Diagram

1-2 marks from these Topic

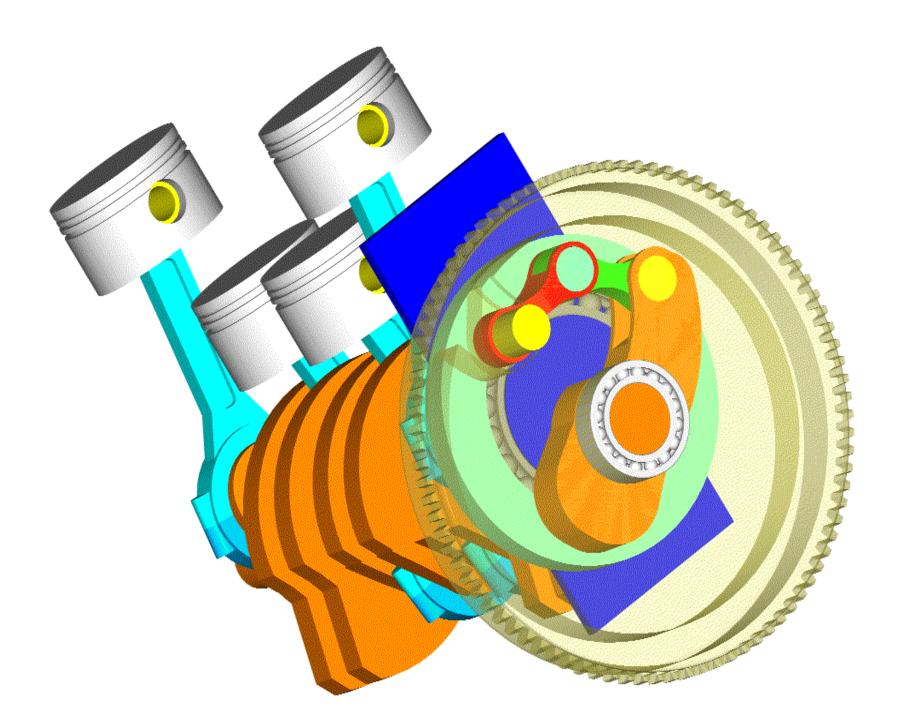
### Flywheel:-

A flywheel is a mechanical device which uses the conservation of angular momentum to store rotational energy; a form of kinetic energy proportional to the product of its moment of inertia and the square of its rotational speed

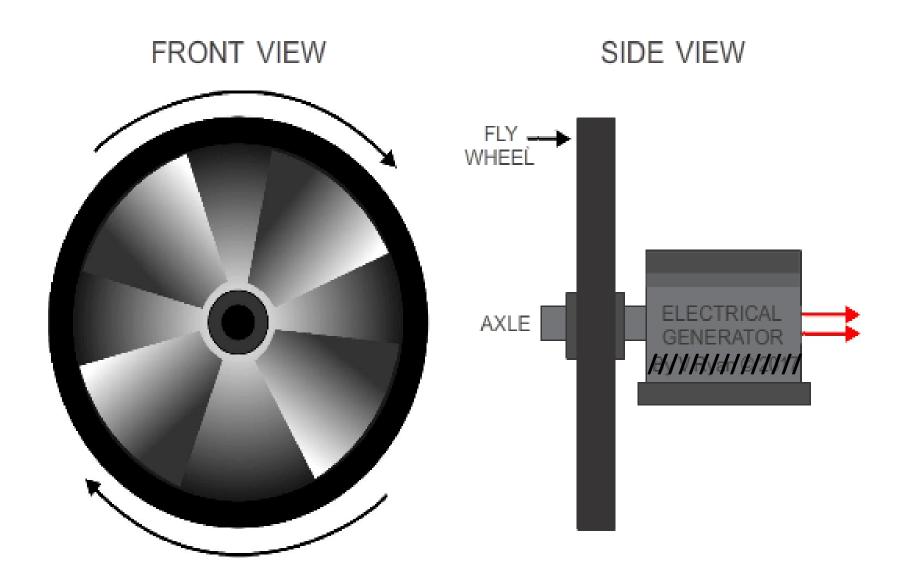


FLYWHEEL CONSTRUCTION

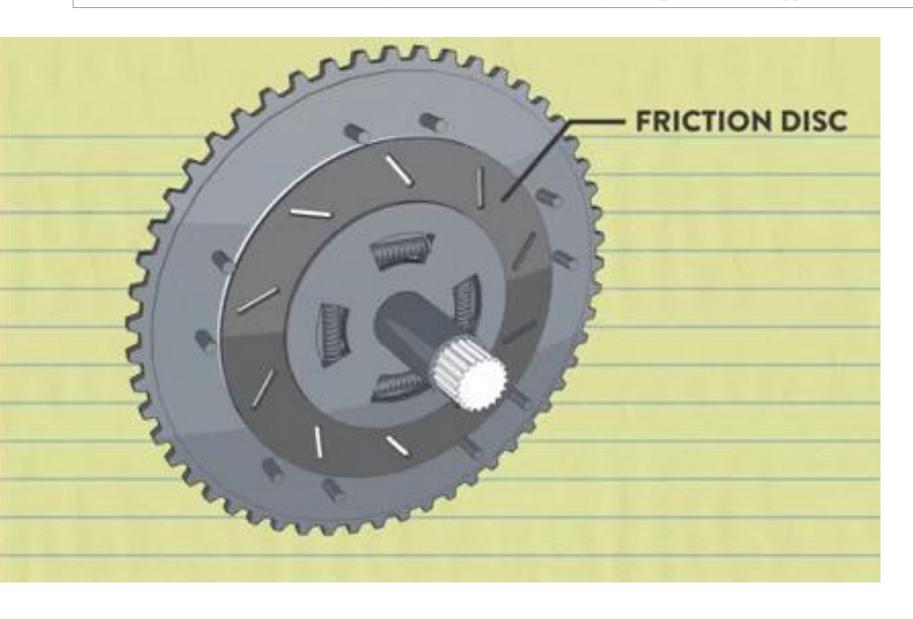














### **Functions**

- To store and release energy when needed during the work cycle
- To reduce the power capacity of electric motor
- To reduce the amplitude of speed fluctuations.

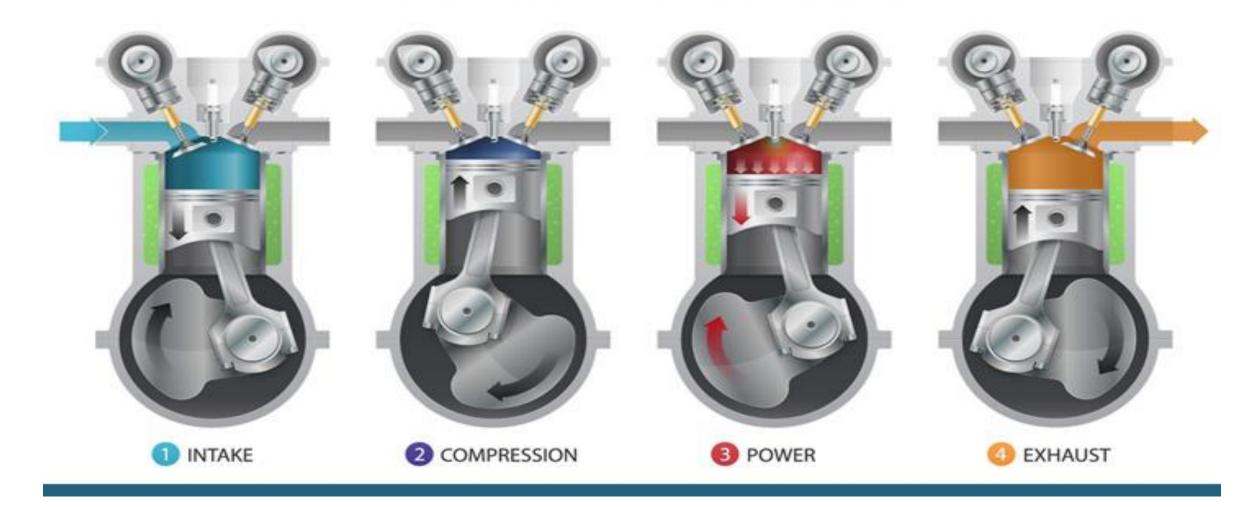


# Flywheel

- A rotating mechanical device that is used to store rotational energy,
- A flywheel is used in machines, serves as a reservoir which stores energy during the period where the supply of energy is more than the requirement.
- Conversely, a flywheel releases stored energy by applying torque to a mechanical load, thereby decreasing the flywheel's rotational speed.



### **4-STROKE CYCLE ENGINE**





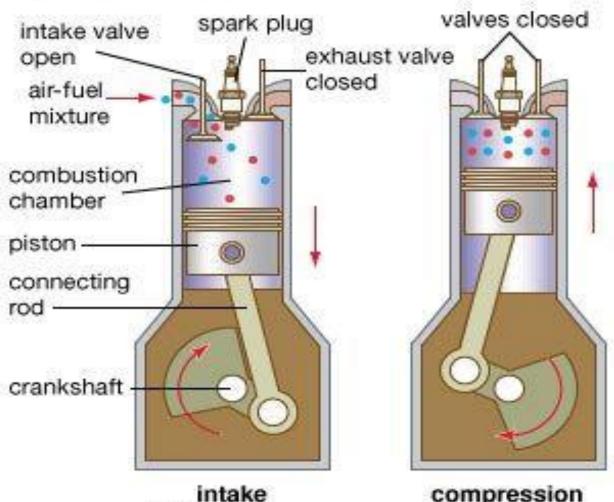
exhaust

valve open

exhaust

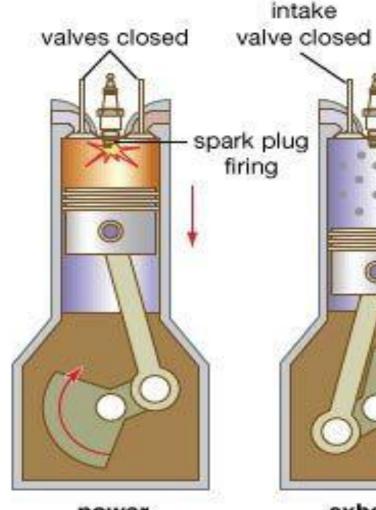
gases

#### Four-stroke cycle

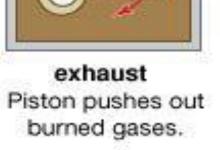


Air-fuel mixture is drawn in.

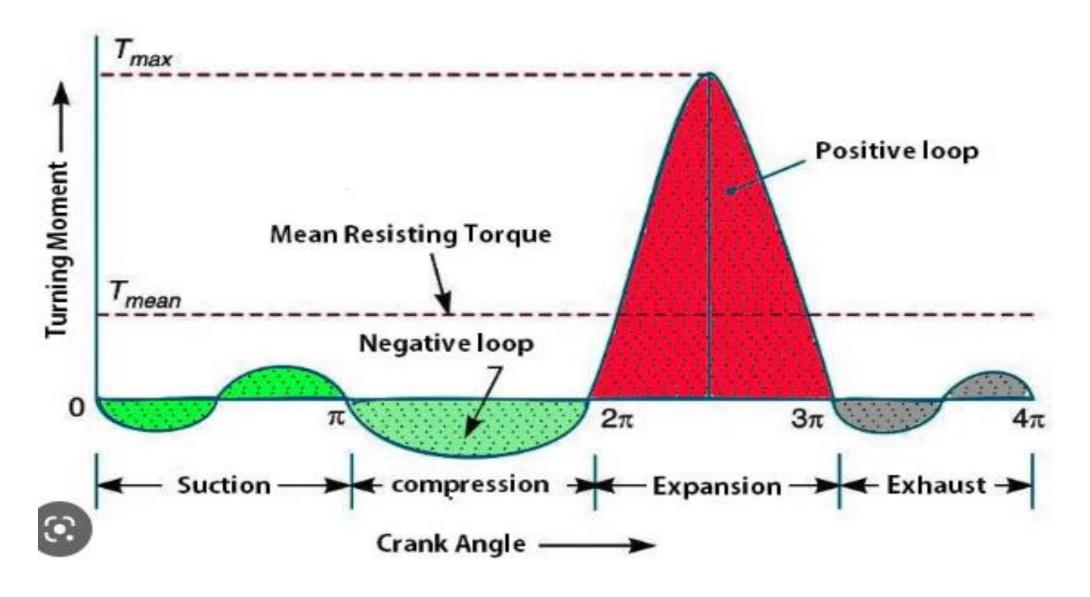
compression Air-fuel mixture is compressed.



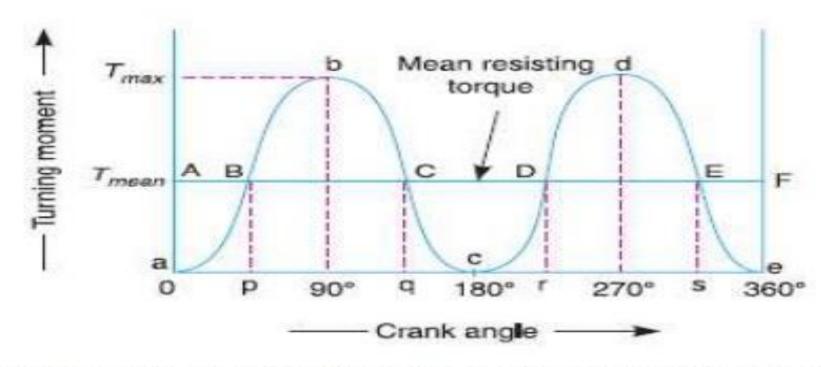
power Explosion forces piston down.











Turning moment diagram for a single cylinder, double acting steam engine.

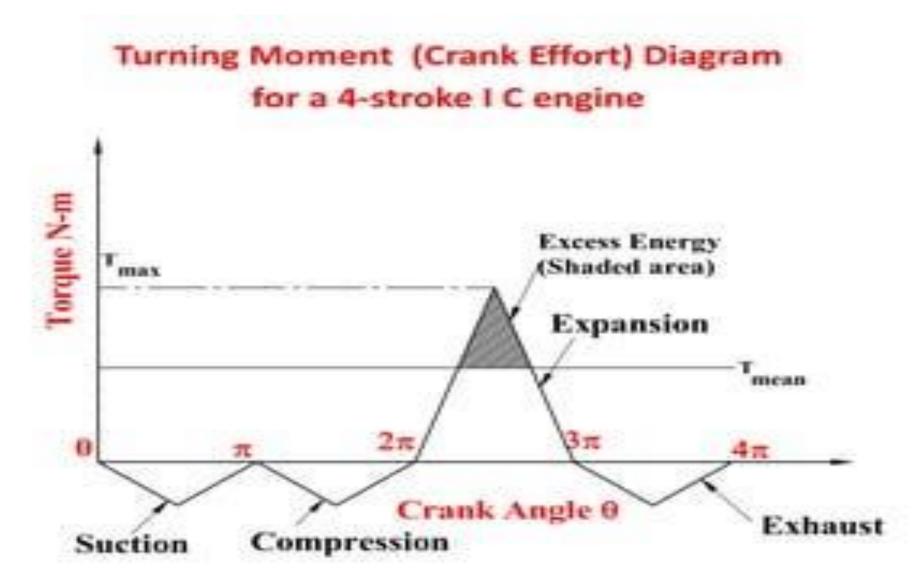
 $F_p$  = Piston effort,

r = Radius of crank

n = Ratio of the connecting rod length and radius of crank, and

 $\theta$  = Angle turned by the crank from inner dead centre.





















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