**Assignment - Day 2**

Select any Hybrid vehicle and write the following details  
1. Specification of the Vehicle  
2. Identify the type of HEV and write the advantages   
3. Identify the type of Power train system and write short notes   
4. List components and its purpose

Hybrid vehicle- Honda Accord

1. Specification of the Vehicle:

**Specifications**

* Engine & Transmission
  + Engine

1993 cc, 4 Cylinders Inline, 4 Valves/Cylinder, DOHC

* + Engine Type

Hybrid - iMMD (Intelligent Multi-mode Drive) hybrid system with 2 motors and 2.0L i-VTEC Petrol engine

* + Fuel Type

Hybrid (Electric + Petrol)

* + Max Power (bhp@rpm)

212 bhp @ 6200 rpm

* + Max Torque (Nm@rpm)

315 Nm

* + Max Engine Performance

143 bhp @ 6200 rpm, 175 Nm @ 4000 rpm

* + Max Motor Performance

181 bhp @ 5000 rpm, 315 Nm

* + Mileage (ARAI)

23.1 kmpl

* + Drivetrain

FWD

* + Transmission

Automatic (CVT), Sport Mode

* + Emission Standard

BS 4

* + Battery

1.3kWh, Lithium Ion Battery Placed Under Rear Seats

* + Electric Motor

Permanent magnet synchronous Placed At Front Axle

* + Others

Regenerative Braking, Idle Start/Stop, Pure Electric Driving Mode

* Dimensions & Weight
  + Length

4933 mm

Length

* + Width

1849 mm

Width

* + Height

1464 mm

Height

* + Wheelbase

2776 mm

Wheelbase

* + Kerb Weight

1620 kg

1. Identify the type of HEV and write the advantages:

Two-Motor Hybrid System

The Accord Hybrid's powertrain assembles an array of advanced technologies to create highly responsive performance along with outstanding fuel efficiency.

ADVANTAGES:

* Superior Fuel Efficiency. Although it probably seems obvious, a well-known advantage of driving a hybrid is the ability to spend less time and money at the pump. ...
* Cleaner Emissions. It won't only be your wallet that will appreciate the benefits of driving a hybrid. ...
* High Resale Value

3. Identify the type of Power train system and write short notes:

The Accord Hybrid's powertrain assembles an array of advanced technologies to create highly responsive performance along with outstanding fuel efficiency.

The 2018 Accord Hybrid is powered by the third generation of Honda's innovative two-motor hybrid powertrain, which pairs a 2.0-litre DOHC i-VTECâ Atkinson-cycle inline-4 engine with 40-percent thermal efficiency to an electric propulsion motor that churns out 232 lb. -ft.

4. List components and its purpose

## Key Components of a Hybrid Electric Car

**Battery (auxiliary):** In an electric drive vehicle, the auxiliary battery provides electricity to start the car before the traction battery is engaged and also powers vehicle accessories.

**DC/DC converter:** This device converts higher-voltage DC power from the traction battery pack to the lower-voltage DC power needed to run vehicle accessories and recharge the auxiliary battery.

**Electric generator:** Generates electricity from the rotating wheels while braking, transferring that energy back to the traction battery pack. Some vehicles use motor generators that perform both the drive and regeneration functions.

**Electric traction motor:** Using power from the traction battery pack, this motor drives the vehicle's wheels. Some vehicles use motor generators that perform both the drive and regeneration functions.

**Exhaust system:** The exhaust system channels the exhaust gases from the engine out through the tailpipe. A three-way catalyst is designed to reduce engine-out emissions within the exhaust system.

**Fuel filler:** A nozzle from a fuel dispenser attaches to the receptacle on the vehicle to fill the tank.

**Fuel tank (gasoline):** This tank stores gasoline on board the vehicle until it's needed by the engine.

**Internal combustion engine (spark-ignited):** In this configuration, fuel is injected into either the intake manifold or the combustion chamber, where it is combined with air, and the air/fuel mixture is ignited by the spark from a spark plug.

**Power electronics controller:** This unit manages the flow of electrical energy delivered by the traction battery, controlling the speed of the electric traction motor and the torque it produces.

**Thermal system (cooling):** This system maintains a proper operating temperature range of the engine, electric motor, power electronics, and other components.

**Traction battery pack:** Stores electricity for use by the electric traction motor.

**Transmission:** The transmission transfers mechanical power from the engine and/or electric traction motor to drive the wheels.