

**Pre-Mix – 5 MCQs for Prelims****Subject – Environment****Date – 13<sup>th</sup> February 2023****Questions from Crash Course****1. Which of the following statements is/are correct regarding EV30@30?**

1. It is an initiative envisaged by India.
  2. The idea is to speed up the deployment of electric vehicles and target at least 30 per cent of new electric vehicle sales by 2030.
- A. 1 Only  
B. 2 Only  
C. Both are Correct  
D. None is Correct

**2. Which of the following statements is/are incorrect regarding FAME II?**

1. It provides incentives for passenger cars used for personal use.
  2. It is being implemented for a period of 5 years which was started from. April 01, 2019, with a total budget of Rs. 10,000 crores.
- A. 1 Only  
B. 2 Only  
C. Both are Correct  
D. None is Correct

**Questions from Test Series****Foundation Test – 11 (Environment)****3. Consider the following statements regarding Electric Vehicles.**

1. Hydrogen fuel cell-run electric vehicles are bulkier than a vehicle running on Lithium-ion battery pack.
2. Hydrogen fuel cell electric vehicles take more time to charge than EVs running on Lithium-ion batteries.

**Which of the above statements is/are correct?**

- A. Only 1  
B. Only 2  
C. Both 1 & 2  
D. Neither 1 nor 2

**4. Consider the following statements regarding Hydrogen Fuel Cell technology:**

1. Storage of hydrogen as a liquid requires cryogenic temperatures.
2. Green Hydrogen is a clean energy vector that enables deep decarbonisation of difficult-to-abate emissions from most polluting industries.
3. Hydrogen cannot be used in Internal Combustion Engines.

**Which of the above statements is/are correct?**

- A. 1 and 2 only  
B. 2 and 3 only  
C. 1 and 3 only  
D. 1, 2 and 3

**Current Affairs Question****5. Why is lithium a preferred element for Batteries to be used in EVs?**

1. Highest energy storage capacity per kilogram.
2. Extremely lightweight.
3. Good high-temperature performance
4. Low self-discharge.

**Select the correct answer using the code given below:**

- A. 1, 2 and 3 only  
B. 2, 3 and 4 only  
C. 1, 2 and 4 only  
D. 1, 2, 3 and 4

## Answers with Explanations

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### Questions from Crash Course

1. Which of the following statements is/are correct regarding EV30@30?

1. It is an initiative envisaged by India.
  2. The idea is to speed up the deployment of electric vehicles and target at least 30 per cent of new electric vehicle sales by 2030.
- A. 1 Only  
B. 2 Only  
C. Both are Correct  
D. None is Correct

**Answer: B**

### Explanation

#### EV30@30 CAMPAIGN

- The Clean Energy Ministerial (CEM) announced a new campaign called EV 30@30 to speed up the deployment of electric vehicles and target at least 30 percent 'new electric vehicle sales by 2030.
- The campaign will support the market for electric passenger cars, light commercial vans, buses and trucks (including battery-electric, plug-in hybrid, and fuel cell vehicle types).
- It will also work towards the deployment of charging infrastructure to supply sufficient power to the vehicles deployed.
- The CEM Electric Vehicle Initiative (EVI) recognises the importance of reducing carbon emissions in the transportation sector, which account for almost a quarter of global

greenhouse gas emissions and is one of the fastest-growing energy end use sectors.

- Governments supporting the EV30@30 Campaign include Canada, China, Finland, France, India, Japan, Mexico, the Netherlands Norway and Sweden.

2. Which of the following statements is/are incorrect regarding FAME II?

1. It provides incentives for passenger cars used for personal use.
  2. It is being implemented for a period of 5 years which was started from. April 01, 2019, with a total budget of Rs. 10,000 crores.
- A. 1 Only  
B. 2 Only  
C. Both are Correct  
D. None is Correct

**Answer: A**

### Explanation

#### FAME II

- The Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles (FAME) Scheme - Phase - 2 with an outlay of Rs. 10,000 crores over a period of three years will be implemented with effect from April 1, 2019.
- The Main Objective of the scheme is to encourage faster adoption of electric and hybrid vehicles by way of offering upfront incentive on the purchase of electric vehicles and also by way of establishing necessary charging infrastructure for EV.
- In this phase two, that includes shared transport emphasis is on electrification of the public transportation.

- The second phase will also not provide any incentive for passenger cars used for personal use.
- In the two-wheelers segment, however, the focus will be on the private vehicles.
- Demand Incentives on operational expenditure made for electric buses will be delivered through State/city transport corporation (STUS).
- In 3W and 4W segment, incentives will be applicable mainly to vehicles used for public transport or registered for commercial purposes.
- The encourage advanced technologies, the benefits of incentives will be extended to only those vehicles which are fitted with advanced batteries like a Lithium ion.
- It also proposes for the establishment of charging infrastructure, whereby about 2700 charging stations will be established in metros, other million-plus cities, smart cities and cities of hilly states across the country.
- It will ensure availability of at least one charging Station in a grid of 3 km x 3 km.
- It will offer incentives to manufacturers, who invest in developing electric vehicles and its components, including lithium-ion batteries and electric motors.
- The centre has asked states to frame their EV policy and provide additional fiscal and non- fiscal incentives to manufacturers and buyers.

### Questions from Test Series

#### Foundation Test - 11 (Environment)

3. Consider the following statements regarding Electric Vehicles.

1. Hydrogen fuel cell-run electric vehicles are bulkier than a vehicle running on Lithium-ion battery pack.
2. Hydrogen fuel cell electric vehicles take more time to charge than EVs running on Lithium-ion batteries.

**Which of the above statements is/are correct?**

- A. Only 1
- B. Only 2
- C. Both 1 & 2
- D. Neither 1 nor 2

**Answer: A**

#### Explanation

- Statement 1 is correct. Because hydrogen has a poor volumetric energy density, storing enough onboard poses weight, volume, kinetics, safety and cost challenges. Hydrogen can only be stored under high pressure, at extremely low temperatures as a liquid, or in metal hydride systems to maximise volumetric energy density.
- Statement 2 is incorrect. A typical electric automobile can be fully charged in slightly over six hours, whereas an FCEV could be refuelled in five minutes and have a range of more than 350 miles. A modest amount of hydrogen can go a long way.

4. Consider the following statements regarding Hydrogen Fuel Cell technology:

1. Storage of hydrogen as a liquid requires cryogenic temperatures.
2. Green Hydrogen is a clean energy vector that enables deep decarbonisation of difficult-to-abate emissions from most polluting industries.

3. Hydrogen cannot be used in Internal Combustion Engines.

**Which of the above statements is/are correct?**

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

**Answer: A**

**Explanation**

- Statement 1 is correct. Storage of hydrogen as a liquid requires cryogenic temperatures.
- Statement 2 is correct. Green Hydrogen is a clean energy vector that enables deep decarbonisation of difficult-to-abate emissions from most polluting industries.
- Statement 3 is incorrect. Hydrogen can be used in Internal Combustion Engines.

**Current Affairs Question**

**5. Why is lithium a preferred element for Batteries to be used in EVs?**

- 1. Highest energy storage capacity per kilogram.
- 2. Extremely lightweight.
- 3. Good high-temperature performance
- 4. Low self-discharge.

**Select the correct answer using the code given below:**

- A. 1, 2 and 3 only
- B. 2, 3 and 4 only
- C. 1, 2 and 4 only
- D. 1, 2, 3 and 4

**Answer: D**

**Explanation**

Lithium-ion batteries are currently used in most electric vehicles because of their **high energy per unit mass** relative to other electrical energy storage systems.

**They also have a**

- High power-to-weight ratio,
- High energy efficiency,
- Good high-temperature performance,
- Low self-discharge.

**Most components of lithium-ion batteries can be recycled.**