Prelim Bits 16-03-2024 | UPSC Daily Current Affairs

Electric Vehicle (EV) Policy

India unveiled a new electric vehicle policy that would provide foreign EV makers with incentives to enter India's electric car market.

- **Administered by -** Ministry of heavy industries (MHI).
- **Features -** Government will *lower import taxes* on certain electric vehicles for companies that commit *minimum investment of Rs 4150 crore ($500 million).*
- There is no upper threshold for investments from EV manufacturers.
- **Time Line -** For vehicles with a minimum CIF (Cost, Insurance, and Freight) value of $35,000, a 15% customs duty will be levied for a duration of 5 years.
- This is subject to the manufacturer setting up manufacturing facilities in India within a 3-year period.
- Additionally, a maximum of 40,000 EVs, at a rate not exceeding 8,000 per year, will be allowed if the investment surpasses $800 million.
- **DVA -** They must achieve a domestic value addition (DVA) of at least 50% within five years.
    - *Domestic Value Addition (DVA) refers to the percentage of localized components used in manufacturing.*
- A localization level of 25% by the 3rd year and 50% by the 5th year is mandated.
- In case of non-achievement of DVA and minimum investment criteria defined under the scheme guidelines, the bank guarantee will be invoked.

India imposes import taxes ranging from 70% to 100% on imported cars, depending on their value.

- **Back up -** The scheme requires companies to back their investment commitments with a bank guarantee, which will be enforced in case of non-compliance with DVA and minimum investment criteria.
- **OEMs -** The scheme will not be applicable to existing Original equipment manufacturers (OEMs) or European OEMs, unless they make a fresh investment of at least $500 million in the next three years.
- Detailed guidelines for the scheme are yet to be released.
- The company applying to be eligible under the scheme will also have to meet a minimum global turnover requirement.

Electric Vehicle (EV)

• **Power Source –** Solely powered by electricity from battery.
• **Energy Source –** Electricity stored in batteries.
• **Key features**
  - **Fuel Efficiency –** Driven for longer distances on single charge.
  - **Emissions –** Produce zero tailpipe emissions and are considered one of the cleanest forms of transportation.
  - **Recharge –** Must be plugged in for recharging.
  - **Maintenance –** Have fewer moving parts and generally require less maintenance.
  - **Cost –** It is decreasing as technology improves and production increases.

References

1. Live Mint – Centre greenlights new Electric Vehicle (EV) Policy
2. The Economic Times – India approves Electric Vehicle (EV) Policy
3. India Today – Tesla's India entry gets boost with new EV Policy
4. PIB – Government approves EV Policy to promote e-vehicles

Hemoglobin A1C (HbA1C) Test

India is estimated to have 10.13 crore people with diabetes, and another 13.6 crore people who are pre-diabetic.

Diabetes mellitus

• A chronic metabolic disorder which is the most common pancreatic endocrine disorder (Non-Communicable Disease).
• **Characteristics -** Caused due to insufficient, deficient or failure of *insulin secretion.*
1. **Hyperglycaemia -** Increase in blood sugar level
2. **Glycosuria -** Excretion of excess glucose in the urine
3. **Polyuria -** Frequent urination
4. **Polydipsia -** Increased thirst
5. **Polyphagia -** Increase in appetite

• **Types of Diabetes -** There are 3 main types of diabetes.
1. **Type 1 diabetes** is thought to be caused by an autoimmune reaction that stops your body from making insulin.
2. **Type 2 diabetes is** caused when your body does not use insulin well and can't keep blood sugar at normal levels.
3. **Gestational diabetes** is caused by the insulin-blocking hormones that are produced during pregnancy

Factors	Type-1 (Insulin dependent diabetes)	Type-2 (Non-insulin dependent diabetes)
Prevalence	10-20%	80-90%
Age of onset	Juvenile onset (Less than 20 years)	Maturity onset (Greater than 30 years)
Body weight	Normal or underweight	Obese
Defect	Insulin deficiency due to destruction of β-cells	Target cells do respond to insulin
Treatment	Insulin administration is necessary	Can be controlled by diet, exercise and medicine.

- **HbA1C Test -** One of the most commonly-used tests to diagnose pre-diabetes and diabetes (both type 1 and type 2).
- Also known as glycated haemoglobin or glycosylated haemoglobin test.
- **Working –** Sugar which enters the blood stream from the food consumed attaches to the hemoglobin in the red blood cells (RBCs).

    o *Haemoglobin is a protein that transports oxygen to all the cells of the body.*

- The HbA1C test measures the percentage of RBCs that have sugar-coated, or glycated, haemoglobin.
- An Hb1A1C below 5.7% (normal); between 5.7 and 6.4% (pre-diabetic); and 6.5% or higher (diabetic).
- The test's results may change under certain conditions, including kidney or liver failure, severe anaemia or a blood disorder such as thalassemia, for early or late pregnancy, etc.

India accounts for 17% of all diabetes patients in the world.

Traditional Testing	HbA1C

• Fasting, post-prandial or post-meal blood sugar tests give blood sugar levels within a specific time frame. • The traditional blood sugar tests may fluctuate depending on items in the person's latest meal and when they last consumed it.	• The HbA1C test reflects average blood glucose levels over the last 2 to 3 months. • The HbA1C test is independent of these variables, making it more reliable and can be taken irrespective of when the latest meal was consumed.

References

1. The Hindu – What is the HbA1C test?
2. Diabetes UK – What is hba1c?

Haiti

Haiti's top gang leader threatens politicians as fires break out in capital.

- Hayti means "***land of the mountains***" in the indigenous Taíno language.
- **Location -** Located between the ***Caribbean Sea*** and the North Atlantic Ocean.
- Haiti occupies the western one-third of the island of ***Hispaniola*** (eastern portion of Hispaniola is occupied by the Dominican Republic).
- **Bordering country** - The Dominican Republic: **Capital -** Port-au-Prince.

- **Geographic features -** Haiti has a warm, humid tropical climate.
- It is located on the leeward side of the island, which means that the influence of humid trade winds is not as great.
- **Highest peak -** Pic la Selle.

Windward Passage *- Between Hispaniola and Cuba*

- **Political setup-** Haiti won independence from France in 1804, making it the second country in the Americas, after the United States, to free itself from the colonial rule.
- Haiti's government is a ***semi-presidential republic,*** with a President acting as the country's leader and a Prime Minister reporting to the president.

Haiti became the world's 1st black-led republic and the 1st independent Caribbean state when it threw off French colonial control and slavery in the early 19th century.

- **Ethnic Groups -** Nearly all of Haiti's population are of African origin.
- A small minority of people of mixed European and African descent (called mulattoes) constitute a wealthier elite.

References

1. The Hindu – Haiti's latest gang violence crisis
2. Reuters – Haiti's top gang leader threatens politicians
3. CNN – Inside Haiti
4. Britannica – Haiti

Ethanol 100

India commenced the sale of Ethanol 100 across 183 Indian Oil outlets in Maharashtra, Karnataka, Uttar Pradesh, New Delhi, and Tamil Nadu.

Ethanol
• Ethyl alcohol or Ethanol *(C2H5OH) is a biofuel that* is naturally made by fermenting sugar. • It is basically *99.9% pure alcohol* that can be blended with petrol. • While it is mostly derived from sugarcane, other organic matter like food grains can also be used for their production. • Most of the ethanol production in India comes from B Heavy Molasses.

- **Significance** - Ethanol 100 stands as a cleaner, greener alternative to gasoline.
- Ethanol 100 has lower emissions of greenhouse gases and pollutants, thus aiding in combating climate change and enhancing air quality in our communities.
- With its ***high-octane rating,*** typically between 100-105, it proves ideal for high-performance engines, ensuring improved efficiency and power output all while minimizing environmental impact.
- **Applications -** Ethanol 100 can be used in a wide array of vehicles, including flex-fuel vehicles (FFVs) designed to run on gasoline, ethanol, or any blend of the two.

Ethanol 20 (E20) programme aims to achieve 20% ethanol blending in petrol by 2025. Currently, 8.5% of ethanol is blended with petrol in India.

References

1. PIB – Ethanol 100 Fuel
2. Economic Times – Ethanol 100
3. Zee Business – Petroleum Minister launches Ethanol 100

Ghost Particles (Neutrinos)

Astronomers detect seven potential 'ghost particles' that passed through planet Earth.

- Neutrinos are ***weakly interacting subatomic particles*** that can travel astronomical distances undisturbed.
- They are a ***type of electron*** but, like neutrons, they do ***not have any charge.***
- They are among the most abundant and tiniest particles in the universe.

- Neutrinos come from all kinds of different sources and have a ***very small mass.***

Neutrinos belong to the family of particles known as leptons which consists of electrons, muons and tau particles.

- Neutrinos' weak charge and almost nonexistent mass have made them notoriously difficult for scientists to observe. They can only been "seen" when they interact with other particles.
- The rarity of interactions with other particles makes them almost impossible to track and hence they are ***called ghost particles.***
- Currently, the largest neutrino-detecting telescope is the University of Madison-Wisconson's ***"IceCube"*** telescope situated in the ***Antarctic.***

IceCube Neutrino Observatory
• It is the first detector of its kind, designed to observe the cosmos from deep within the South Pole ice in ***Antarctica.*** • Approximately 300 physicists from 59 institutions in 14 countries make up the IceCube Collaboration. • ***The National Science Foundation (NSF***) provides the primary funding for the IceCube Neutrino Observatory, with assistance from partner funding agencies around the world. • ***The University of Wisconsin-Madison*** is the lead institution, responsible for the maintenance and operations of the detector. • They provide information to probe the most violent astrophysical sources - events like exploding stars, gamma-ray bursts, and cataclysmic phenomena involving black holes and neutron stars. • IceCube has been using a string of golden globes, known as digital optical modules (DOMs), which are embedded in ice for detecting neutrinos which pass through the Earth.

References

1. The Indian Express – Astronomers detect 7 potential 'ghost particles'
2. Space.com – Scientists may have caught 7 exotic 'ghost particles'
3. WION – Seven 'ghost particles' pierce through Earth
4. IceCube – About IceCube Observatory

Other Important Topics

JanSamarth Portal

Department of Fisheries recently inaugurates the integration of the Kisan Credit Card Fisheries scheme onto the JanSamarth Portal.

• Jan Samarth is a unique digital portal linking ***15 credit linked government schemes*** with 7 loan categories on a single platform

• It aims to ease of access to all the beneficiaries and related stakeholders.

SIMA (Scalable Instructable Multiworld Agent)

• Google DeepMind recently revealed its latest AI gaming agent Scalable Instructable Multiworld Agent (SIMA) to perform tasks across video game environments.

Gulf of Tonkin

• The Gulf of Tonkin is a crescent-shaped body of water in the northwestern part of the ***South China Sea***.
• The gulf is bordered by ***Vietnam in the west and northwest*** and by ***China in the north*** and ***Leizhou Peninsula and Hainan Island in the east***.
• Many rivers empty into the Gulf of Tonkin, with the Red River (Yuan River in Chinese) supplying the major riverine discharge.
• Hainan Strait separates the principal shipping route between ***Hainan Island and China's Leizhou Peninsula.***



Nausena Bhawan

• *Nausena Bhawan, the headquarters of Indian Navy, located at Delhi Cantonment was formally inaugurated by Union Defence Minister.*

Fair share for health and care

• Fair share for health and care is a new report by the ***World Health Organization***, addressed the gender gap in global healthcare.

Findings

• Women comprises 67% of the global health and social care workforce but facing an average pay gap of 24% compared to men.
• Globally, 90% of women's earnings were directed towards their families' well-being, compared to only 30–40% of men's earnings.
• Women made up 25% to 60% of doctors, but between 30% and 100% of nursing staff across 35 countries.
• Unpaid health work adds value to health contributions, and 76% of unpaid care activities are performed by women.
• In India, women spent around 73% of their total daily working time on unpaid work, compared to men who spent around only 11% of their daily working time on unpaid work.

AVGC-XR policy

Kerala's cabinet has approved a new Animation, Visual Effects, Gaming, Comics and Extended Reality (AVGC-XR) sector policy.

• The policy aims at driving the inception and expansion of 250 such companies and creation of 50,000 new jobs in the sector by 2029.
• Through this, the State also expects to account for 10% of India's export revenues in the AVGC-XR industry.

Bannerghatta Biological Park

The water crisis in Bengaluru is unlikely to have an impact on the Bannerghatta Biological Park (BBP), which is located in the outskirts of the city.

• Bannerghatta Biological Park is a sanctuary located in ***Bengaluru, Karnataka.***
• It is established in 1971 and declared as a biological reserve in **2002**.
• It is the ***1st biological park in India*** to have a fenced forested elephant sanctuary.
• In 2006, ***India's first butterfly enclosure*** was inaugurated at the park.
• ***The Suvarnamukhi stream*** runs through the national park.

Mathikettan Shola National Park

• Mathikettan Shola National Park is a national park in ***Kerala established in 2003.***
• It shares an interstate boundary with ***Kerala and Tamil Nadu.***
• It is originally a part of the ***Cardamom Hill Reserve (CHR)***, serve as perennial water sources for several tributaries of the ***Panniyar river.***
• Mathikettan Shola National Park is known for its *pristine shola forests,* unique montane evergreen forests found in the Western Ghats.

Bharat Pashudhan

• Bharat Pashudhan is a ***digital database for livestock animals in India,*** part of India's Digital Public Infrastructure.
• The app allows users to register the births and deaths of animals, and to create animal identification using the unique ID number or Pashu Aadhaar.
• **Pashupalak App** empowers the farmers to be able to access all free and paid livestock related schemes/services.

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