



DAILY CURRENT AFFAIRS-

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1.Vikram-1: Advanced Technologies Behind India's First Private Orbital Launch

Why in News?

Skyroot Aerospace successfully launched **Vikram-1** under the '**Aagaman**' mission from **Sriharikota**, making **India the third country**, after the **United States** and **China**, where a private company has independently achieved **orbital launch capability**.

Key Highlights

Particular	Details
Mission	Aagaman
Launch Vehicle	Vikram-1
Developer	Skyroot Aerospace
Launch Site	ISRO's First Launch Pad, Sriharikota
Orbit Achieved	~450 km Low Earth Orbit
Payload Capacity	350 kg

What Makes Vikram-1 Unique?

Technology	Significance
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3D-Printed Rocket Engine	Reduces manufacturing time, weight and number of components
Carbon-Fibre Composite Airframe	Provides high strength with lower weight, improving payload efficiency
Four-Stage Expendable Rocket	Optimized for launching small satellites into Low Earth Orbit
Modular Design	Supports rapid manufacturing and cost-effective commercial launches

Mission Highlights

- **Successful orbital insertion** of five commercial payloads into a 450 km orbit.
- **Demonstration of indigenous private launch capability** using advanced manufacturing technologies.
- **Successful completion of the long-coast phase**, a critical milestone for maiden launches.
- **Launch from ISRO infrastructure** under the reformed private space ecosystem.

Significance

- **Expansion of India's private space launch capability** for the global small satellite market.
- **Adoption of advanced manufacturing technologies** through 3D printing and composite materials.
- **Strengthening of the commercial space ecosystem** following space sector reforms.
- **Reduction in launch costs and production time** through innovative rocket design.
- **Enhancement of India's global competitiveness** in the rapidly growing space economy.

Role of Space Sector Reforms

- **Creation of IN-SPACe (2022)** to facilitate private participation in space activities.
- **Opening of ISRO facilities** for private launch services and testing.
- **Growth of over 400 space startups** following the 2020 space sector reforms.
- **Promotion of innovation and investment** in indigenous space technologies.



Challenges

- **Need for consistent mission success** to gain international commercial confidence.
- **Competition from established global launch providers** in the small satellite market.
- **Requirement for advanced testing and quality assurance** for emerging launch vehicles.
- **Expansion of launch infrastructure** to support increasing private missions.

Way Forward

- **Greater collaboration between ISRO and private startups** for technology development.

- **Expansion of indigenous manufacturing capabilities** for critical space components.
- **Strengthening of research in advanced materials and propulsion systems.**
- **Promotion of India as a global hub** for affordable commercial satellite launches.

UPSC Prelims MCQ

Q. With reference to the Vikram-1 launch vehicle, consider the following statements:

1. It is India's first privately developed orbital launch vehicle.
2. It uses a carbon-fibre composite airframe and a 3D-printed rocket engine.
3. It is a reusable launch vehicle designed for heavy-lift missions.

Which of the statements given above 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)

UPSC Mains Question (10 Marks)

India's space sector reforms have accelerated private participation in space activities. Discuss the significance of the Vikram-1 mission in advancing indigenous space technology and strengthening India's commercial space ecosystem. (150 words)

2.Shabdalok: India's First Immersive Language Museum

Why in News?

Union Home Minister **Amit Shah** inaugurated **Shabdalok (Museum of Word)**, **India's first immersive language museum**, at the **National Library, Kolkata**. The museum aims to preserve and promote India's rich linguistic heritage through interactive digital technologies.

Key Highlights

Particular	Details
Museum	Shabdalok (Museum of Word)
Location	National Library, Kolkata
Ministry	Ministry of Culture
Inaugurated By	Union Home Minister Amit Shah
Theme	India's linguistic and literary heritage

About Shabdalok

Shabdalok is an **immersive language museum** that showcases the **evolution of Indian languages, scripts and literature** using modern digital technologies.

Key Features

- **Nine thematic galleries** depicting the evolution of Indian languages and scripts.
- **Interactive digital displays, holograms and motion-sensor technology** for immersive learning.
- **Coverage of all 22 Scheduled Languages** recognised under the Constitution.
- **Representation of nearly 380 Indian languages and dialects** highlighting India's linguistic diversity.
- **Journey from oral traditions to digital literature** through interactive exhibits.

Development

Institution	Role
National Library	Developed the museum
Ministry of Culture	Nodal Ministry
DRONAH	Planning and curation
National Council of Science Museums (NCSM)	Interactive exhibit design

Constitutional Provisions Related to Languages

Provision	Details
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Eighth Schedule	Recognises 22 Scheduled Languages
Articles 343–351	Deal with official language and language policy
Article 350A	Instruction in mother tongue at the primary stage
Article 350B	Special Officer for Linguistic Minorities

Significance

- **Preservation of India's linguistic heritage** through modern digital technologies.
- **Promotion of awareness** about India's diverse languages and scripts.
- **Strengthening of cultural identity** by documenting oral and literary traditions.
- **Encouragement of multilingualism** in line with the National Education Policy (NEP), 2020.
- **Integration of technology with heritage conservation** to improve public engagement.

Way Forward

- **Expansion of digital archives** for endangered languages and manuscripts.
- **Greater collaboration with universities and linguistic institutions** for research.
- **Promotion of language learning and cultural education** among youth.
- **Replication of similar museums** in other regions to celebrate India's linguistic diversity.

UPSC Prelims MCQ

Q. With reference to the Eighth Schedule of the Constitution of India, consider the following statements:

1. It currently recognises 22 Scheduled Languages.
2. Articles 343 to 351 deal with the Official Language provisions of the Constitution.
3. Sanskrit is not included in the Eighth Schedule.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer: (b)

UPSC Mains Question (10 Marks)

India's linguistic diversity is an important component of its cultural heritage. Discuss the role of initiatives such as Shabdlok in preserving linguistic heritage while promoting national integration. (150 words)

3.National Maritime Heritage Complex (NMHC) – Lothal

Why in News?

A life-size recreation of a Harappan town is being developed at **Lothal, Gujarat**, as part of the **₹4,000-crore National Maritime Heritage Complex (NMHC)**. The project aims to showcase India's **4,500-year-old maritime heritage** through immersive exhibits.

Key Highlights

Particular	Details
Project	National Maritime Heritage Complex (NMHC)
Location	Lothal, Gujarat
Cost	₹4,000 crore
Area	375 acres
Nodal Ministry	Ministry of Ports, Shipping and Waterways
Theme	India's maritime heritage and Harappan civilisation

About National Maritime Heritage Complex (NMHC)

The **National Maritime Heritage Complex (NMHC)** is a flagship project that aims to preserve, promote and showcase India's maritime history from the **Indus Valley Civilization to the modern era**.

Major Features

- **Life-size Harappan town** with markets, houses and dockyard.
- **World's largest maritime museum** spread over nearly **7 lakh sq. ft.**
- **Six thematic museum galleries** depicting India's maritime history.
- **Lighthouse museum, jetty walkway and 5D theatre** for immersive learning.
- **International collaboration** through MoUs with several countries.

About Lothal

Feature	Details
Civilization	Indus Valley Civilization
Location	Gujarat, near the Gulf of Khambhat
Excavated By	S. R. Rao (ASI)
Discovered	1954
Famous For	World's earliest known artificial dockyard*

**(Generally accepted by archaeologists, though some scholars consider it a reservoir.)*

Significance of Lothal

- **Evidence of advanced maritime trade** with Mesopotamia and other regions.
- **Sophisticated dockyard engineering** reflecting Harappan technological advancement.
- **Well-planned urban settlement** with drainage and civic infrastructure.
- **Major centre for bead-making, metallurgy and trade** during the Harappan period.
- **Important archaeological site** for understanding India's ancient maritime history.

LIFE-SIZE HARAPPAN TOWN
AT LOTHAL, GUJARAT | ₹4,000 CRORE PROJECT
 MARITIME HERITAGE COMPLEX (NMHC)

IMMERSIVE EXPERIENCE OF **4,500 YEARS** OF INDIA'S MARITIME HISTORY

LOTHAL, GUJARAT

₹ TOTAL INVESTMENT ₹4,000 CRORE	₹ FIRST PHASE COST ₹775 CRORE	CABINET APPROVAL 2024	PROJECT AREA 375 ACRES
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WORLD'S LARGEST MARITIME MUSEUM
7 LAKH SQ FT
WORLD'S LARGEST

THAL – MARITIME LEGACY
WORLD'S OLDEST ARTIFICIAL DOCK

MARITIME HERITAGE | INDUS TRADE | NAVIGATION LEGACY | MARITIME CULTURE

INDUS VALLEY CIVILISATION → ADVANCED TRADE & SHIPBUILDING → CONNECTING INDIA TO THE WORLD

Significance of NMHC

- **Preservation of India's maritime heritage** through modern museum infrastructure.
- **Promotion of heritage tourism** and cultural awareness.
- **Strengthening of archaeological education** using immersive technologies.
- **Recognition of India's ancient maritime traditions** at the global level.
- **Generation of employment and regional economic development** through tourism.

Way Forward

- **Expansion of archaeological research** at ancient port sites.
- **Integration of digital technologies** for heritage interpretation.
- **Promotion of international collaboration** in maritime archaeology.
- **Development of sustainable heritage tourism** around historic coastal sites.

UPSC Prelims MCQ

Q. With reference to Lothal, consider the following statements:

1. It was an important port city of the Indus Valley Civilization.
2. It is located in present-day Gujarat.
3. It is known for one of the world's earliest artificial dockyards.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) **1, 2 and 3**

Answer: (d)

UPSC Mains Question (10 Marks)

Discuss the significance of Lothal in understanding the maritime traditions of the Indus Valley Civilization. How can the National Maritime Heritage Complex contribute to preserving India's maritime heritage? (150 words)

4. Dyslipidemia in India: Findings of the ICMR-INDIAB Study

Why in News?

The **ICMR-INDIAB study** found that **87.3% of Indian adults** have at least one abnormal lipid level, with **low High-Density Lipoprotein (HDL) cholesterol** emerging as the most common abnormality. The findings highlight the growing burden of cardiovascular risk in India.

Key Highlights

Particular	Details
Study	ICMR-INDIAB
Coverage	23,665 adults across all States and UTs
Adults with Dyslipidemia	87.3%
Most Common Abnormality	Low HDL cholesterol

Peak Age Group	30–39 years
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What is Dyslipidemia?

Dyslipidemia is a condition characterized by **abnormal levels of lipids (fats)** in the blood, increasing the risk of **atherosclerosis, heart attack and stroke**.

Types of Lipid Abnormalities

- **High Low-Density Lipoprotein (LDL)** ("Bad" cholesterol).
- **Low High-Density Lipoprotein (HDL)** ("Good" cholesterol).
- **High triglyceride levels.**
- **High total cholesterol.**

Major Findings of the Study

- **High prevalence of abnormal lipid levels** among Indian adults.
- **Low HDL cholesterol** identified as the most common lipid disorder.
- **Early onset of dyslipidemia**, particularly in the 30–39 years age group.
- **Higher prevalence among women and urban populations**, with rural areas also showing rising cases.
- **Estimated 355 million Indians** affected despite appearing otherwise healthy.

Significance

- **Early identification of cardiovascular risk** before the onset of heart disease.
- **Need for routine lipid screening** among young adults.
- **Support for preventive healthcare** through lifestyle modification.
- **Reduction in the burden of non-communicable diseases (NCDs).**
- **Improvement in public health planning** through population-level screening.

Way Forward

- **Expansion of early cholesterol screening** irrespective of diabetes or obesity status.

- **Promotion of healthy diets and regular physical activity** through public awareness campaigns.
- **Strengthening of NCD screening programmes** under primary healthcare.
- **Improved access to preventive healthcare and lipid-lowering treatment** for high-risk individuals.

UPSC Prelims MCQ

Q. With reference to dyslipidemia, consider the following statements:

1. High LDL cholesterol increases the risk of atherosclerosis.
2. HDL cholesterol helps remove excess cholesterol from the bloodstream.
3. Very high triglyceride levels may increase the risk of pancreatitis.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) **1, 2 and 3**

Answer: (d)

UPSC Mains Question (10 Marks)

Non-communicable diseases are emerging as a major public health challenge in India. Discuss the significance of early screening and lifestyle interventions in preventing dyslipidemia and cardiovascular diseases. (150 words)

5.Semicon India Programme 2.0

Why in News?

The Government has launched **Semicon India Programme 2.0** with an outlay of **₹1.27 lakh crore** to promote **advanced semiconductor design and manufacturing**, particularly for **Artificial Intelligence (AI)** and other emerging technologies.

Key Highlights

Particular	Details
Programme	Semicon India 2.0

Budget	₹1.27 lakh crore
Nodal Ministry	Ministry of Electronics and Information Technology (MeitY)
Focus	Semiconductor design, fabrication and manufacturing ecosystem
Incentive Model	Equity-based support for Indian chip companies

About Semicon India Programme 2.0

Semicon India 2.0 aims to establish India as a **global semiconductor hub** by strengthening the entire semiconductor value chain, from **chip design to fabrication, packaging and research**.

Major Components

Pillar	Focus Area
Design Ecosystem	Indigenous chip design and Intellectual Property (IP) development
Machines & Materials	Semiconductor equipment and raw materials
Fabrication Units	Silicon, compound semiconductor and display fabrication plants
Advanced Packaging	ATMP and OSAT facilities
Talent Development	Skilled workforce for semiconductor industry
Research & Development	Innovation in advanced semiconductor technologies

Key Features

- **Equity-based incentives** for Indian semiconductor companies to support high-value chip design.
- **Promotion of advanced AI chips** and high-performance computing technologies.
- **Support for indigenous Intellectual Property (IP)** creation in semiconductor design.
- **Expansion of fabrication and packaging infrastructure** across the semiconductor value chain.
- **Encouragement of public-private partnerships** for long-term investment.

Significance

- **Strengthening of India's semiconductor self-reliance** under *Atmanirbhar Bharat*.

- **Reduction in dependence on imported semiconductor chips.**
- **Expansion of domestic manufacturing capacity** for strategic technologies.
- **Promotion of AI, IoT and next-generation electronics** through advanced chip development.
- **Generation of high-skilled employment** and increased global investment.

Way Forward

- **Strengthening of industry-academia collaboration** for semiconductor research.
- **Expansion of fabrication and packaging facilities** across India.
- **Promotion of indigenous semiconductor Intellectual Property (IP).**
- **Deepening of international technology partnerships** while building domestic capabilities.

UPSC Prelims MCQ

Q. With reference to the Semicon India Programme 2.0, consider the following statements:

1. It aims to strengthen India's semiconductor design and manufacturing ecosystem.
2. The programme proposes equity-based incentives for Indian chip companies.
3. It focuses only on semiconductor fabrication and excludes chip design.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Answer: (b)

UPSC Mains Question (10 Marks)

Discuss the significance of the Semicon India Programme 2.0 in achieving technological self-reliance. Examine the challenges India faces in developing a globally competitive semiconductor ecosystem. (150 words)



