Abhyas – a High-speed Expendable Aerial Target (HEAT)

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In news– India has successfully flight-tested ABHYAS –A High speed Expendable Aerial Target (HEAT) from the Integrated Test Range (ITR), Chandipur off the coast of Odisha.

About ABHYAS-

- Abhyas has been developed by the Aeronautical Development Establishment (ADE), a Bengaluru-based facility of the **Defence Research and Development Organisation (DRDO)**.
- Abhyas – an originally Sanskrit word for practice or preparatory exercise, offers a realistic threat scenario for practice of various weapon systems and has been designed for autonomous flying with the help of an autopilot system onboard.
- It was developed by adopting DRDO's Lakshya, its high-speed target drone system.
- The first launch of ABHYAS was held in Chitradurga Aeronautical Testing Range in 2012.
- The **air vehicle** was **launched using twin under-slung boosters** which provide the initial acceleration to the vehicle.
- It is powered by a small gas turbine engine to sustain a long endurance flight at high subsonic speed.
- The target aircraft is **equipped with Micro-Electromechanical Systems-based Inertial Navigation System for navigation** along with the Flight Control Computer for guidance and control.
- It is also **equipped with Indigenous Radio Altimete**r for very low altitude flight and Data Link for encrypted

communication between the Ground Control Station and Target Aircraft.

- The aircraft is **programmed for a fully autonomous flight,** meaning that it flies under the control of automatic systems and needs no intervention from a human pilot.
- **Abhyas has Radar cross-section (RCS), Visual and IR augmentation systems** required for weapon practice.
- Its fuselage consists of five sections, namely the nose cone, equipment bay, fuel tank bay, air intake bay and tail cone.
- The vehicle can be used as a target for evaluation of various missile systems.

Aeronautical Development Establishment-

- It is a laboratory of India's Defence Research and Development Organisation(DRDO).
- **Located in Bangalore**, its primary function is research and development in the field of military aviation.
- **Its successful projects include-**
    - Lakshya (an aerial target).
    - Nishant (a reconnaissance unmanned aerial vehicle).
    - Nirbhay(a subsonic cruise missile).
    - Flight simulators for (LCA, Ajit, Kiran, Mig-21) and
    - Avionics packages for Tejas-LCA (display and FCC).
- **It earlier worked on Sparrow (mini-UAV) and Ulka (aerial target).**