What are cluster bombs?

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In news– Russia has been accused for using cluster bombs and vacuum bombs in the ongoing war against Ukraine.

What are cluster bombs?

- As per the 2008 Convention on Cluster Munitions, a cluster munition means a "***conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions***".
- They are non-precision weapons that are designed to injure or kill human beings indiscriminately over a large area, and to destroy vehicles and infrastructure such as runways, railway or power transmission lines.
- They can be dropped from an aircraft or launched in a projectile that spins in flight, scattering many bomblets as it travels.
- Many of these bomblets end up not exploding, but continue to lie on the ground, often partially or fully hidden and difficult to locate and remove, posing a threat to the civilian population for long after the fighting has ceased.
- The first significantly operationally used cluster bomb was the German SD-2 or *Sprengbombe Dickwandig 2 kg*, commonly referred to as the Butterfly Bomb, used in World War II to attack both civilian and military targets.
- Countries that have ratified the Convention on Cluster Munitions are prohibited from using cluster bombs.
- The Convention entered into force and became binding international law upon ratifying states on 1 August 2010.
- As of date, there are 110 state parties to the convention, and 13 other countries have signed up but are yet to ratify it. Neither Russia nor Ukraine are

signatories.

What is vacuum bomb or thermobaric weapon?

- Thermobaric weapons, also known as **aerosol bombs, fuel air explosives, or vaccum bombs use oxygen from the air** for a large, high-temperature blast.
- A thermobaric weapon causes significantly greater devastation than a conventional bomb of comparable size.
- It is capable of producing a blast wave of a significantly longer duration than that of a conventional explosive and is capable of vaporizing human bodies and crushing internal organs.
- The weapons, which go off in two separate stages, can be fired as rockets from tank-mounted launchers or dropped from aircraft.
- As they hit their target, a first explosion splits open the bomb's fuel container, releasing a cloud of fuel and metal particles that spreads over a large area.
- A second explosion then occurs, igniting the aerosol cloud into a giant ball of fire and sending out intense blast waves that can destroy even reinforced buildings or equipment and vaporise human beings.
- While most conventional explosives consist of a fuel–oxidizer premix such as black powder which contains 25% fuel and 75% oxidizer, or a decomposition-type explosive such as RDX, thermobaric weapons are almost 100% fuel and as a result are significantly more energetic than conventional condensed explosives of equal weight.

- **Their reliance on atmospheric oxygen makes them unsuitable for use underwater, at high altitude, and in adverse weather.**
- **In India, based on the high-explosive squash head (HESH) round,** a 120 mm thermobaric round was developed, which packed thermobaric explosives into the tank shells to increase the effectiveness against enemy bunkers and

light armoured vehicles.

- **The design and the development of the round was taken up by Armament Research and Development Establishment (ARDE). T**he rounds were designed for the Arjun MBT.
- **Vacuum bombs are not prohibited by any international law or agreement**, but their use against civilian populations in built-up areas, schools or hospitals, could, attract action under the Hague Conventions of 1899 and 1907.