



UPSC PRELIMS 2023

Q.01 CONSIDER THE FOLLOWING STATEMENTS BALLISTIC MISSILES:

1. It is propelled only for a brief duration after the launch.
2. It is developed primarily to carry conventional warheads.
3. The range is small (below 500 km) as it needs to be constantly propelled to hit the target with high precision.

Which of the statements given above is/are correct?

- A. 1 and 2 only B. 2 only
C. 1 only D. All of the above

ANSWER : C

Explanation :

Ballistic Missile

- ❖ It is propelled only for a brief duration after the launch.
- ❖ Similar to a rocket engine.
- ❖ Long-range missiles leave the earth's atmosphere and re enter it.
- ❖ Low precision as it is unguided for most of its path and its trajectory depends on gravity, air resistance and Coriolis Force.
- ❖ Can have a very long range (300 km to 12,000 km) as there is no fuel requirement after its initial trajectory.
- ❖ Heavy payload carrying capacity.
- ❖ Can carry multiple payloads (Multiple Independently targetable Re-entry Vehicle)
- ❖ Developed primarily to carry nuclear warheads.
- ❖ E.g. Prithvi I, Prithvi II, Agni I, Agni II and Dhanush missiles.





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Q.02 CONSIDER THE FOLLOWING STATEMENTS ABOUT INTEGRATED GUIDED MISSILE

Development Programme (IGMDP) :

1. IGMDP was conceived by Dr. A P J Abdul Kalam.
2. The programme was managed by the Defence Research and Development Organisation (DRDO) and Ordnance Factories Board.
3. IGMDP was conceived in response to the Missile Technology Control Regime.

Which of the statements given above is/are correct?

- | | |
|-----------------|---------------------|
| A. 1 and 2 only | B. 2 only |
| C. 1 and 3 only | D. All of the above |

ANSWER: D

Explanation :

Ballistic Missile

- ❖ IGMDP was conceived by Dr. A P J Abdul Kalam to enable India attain self-sufficiency in missile technology.
- ❖ IGMDP was conceived in response to the Missile Technology Control Regime that decided to restrict access to any technology that would help India in its missile development program.
- ❖ To counter the MTCR, the IGMDP team formed a consortium of DRDO laboratories, industries and academic institutions to build these sub-systems, components and materials.





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Q.03

WHICH OF THE FOLLOWING STATEMENTS IS/ARE NOT CORRECT ABOUT THE ANTI-SATELLITE (ASAT) SYSTEM?

- A. It is a missile-based system to attack moving satellites.
- B. It is of 2 kinds— based on launching from the ground or from planes.
- C. Mission Akash was undertaken in India to develop highly-potent Anti-satellite weapons (ASAT).
- D. ASAT missiles can be air, sea or land-based.

ANSWER: C

Explanation :

Anti-satellite (ASAT) System

- ❖ It is a missile-based system to attack moving satellites.
- ❖ It is of 2 kinds— based on launching from the ground or from planes.
- ❖ Defence Research and Development Organisation (DRDO) has developed Anti-satellite (ASAT) completely indigenously.
- ❖ Mission Shakti was undertaken to develop highly-potent Anti-satellite weapons (ASAT). It is a joint programme of the Defence Research and Development Organisation (DRDO) and the Indian Space Research Organisation (ISRO).





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Q.04 CONSIDER THE FOLLOWING PAIRS :

1. Prithvi : Short-range surface-to-surface ballistic missile (Prithivi means Earth Surface to Surface)
2. Agni : Intermediate-range surface-to-surface ballistic missile
3. Trishul: Short-range low-level surface-to-air missile
4. Akash: Third generation anti-tank missile

Which of the pairs given above is/are correct?

- A. 1 and 4 only
- B. 1, 2 and 3 only
- C. 3 and 4 only
- D. All of the above

ANSWER: B

Explanation :

- ❖ Keeping in mind the requirements of various types of missiles by the defence forces, the development of five missile systems was taken up.
- ❖ Prithvi : Short-range surface-to-surface ballistic missile (Prithivi means Earth Surface to Surface)
- ❖ Agni : Intermediate-range surface-to-surface ballistic missile
- ❖ Trishul : Short-range low-level surface-to-air missile
- ❖ Akash : Medium-range surface-to-air missile (Akash means Sky Surface to Air)
- ❖ Nag : Third generation anti-tank missile





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Q.05

CONSIDER THE FOLLOWING STATEMENTS ABOUT POLAR SATELLITE LAUNCH VEHICLE (PSLV):

1. PSLV was developed in the 1990s by ISRO to place satellites in polar and near polar Lower Earth Orbits.
2. It is a four stage launch vehicle.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

ANSWER: C

Explanation :

- ❖ PSLV (Polar Satellite Launch Vehicle) is an Indian Space Research Organization (ISRO) developed expendable launch system.
- ❖ It belongs to the medium-lift launcher class, with a range of orbits including the GeoSynchronous Transfer Orbit, Lower Earth Orbit, and Polar Sun Synchronous Orbit.
- ❖ PSLV activities are managed from the Satish Dhawan Space Center in Sriharikota, which is situated on India's east coast.
- ❖ PSLV has a four-stage system comprising a combination of solid and liquid-fuelled rocket stages.

