DEFENCE TECHNOLOGY – MCQ BOOKLET

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1. Missile Systems and Strategic Weapons-Ballistic missiles, cruise missiles, anti-ballistic missiles

Anti-Ballistic Missile (ABM) Systems: Layered Defence and Interception Principles

1. The term 'Thermal High Altitude Area Defense', sometimes mentioned in news, refers to

A. Anti-Missile system.
B. Air-launched cruise missile.
C. Aircraft navigation system.
D. Surface-to-air guided weapon.

Ans: A

UPSC CDS-2-2022

- THAAD uses a "hit-to-kill" technology, meaning the interceptor missile destroys the incoming threat through kinetic energy upon direct impact. - It is designed to defend against threats over a large area.

2. From which one of the following countries has India procured the S-400 Triumf air defence missile system ?

A. United Kingdom
B. U.S.A.
C. France
D. Russia

Ans: D

UPSC CDS-2-2023

India has procured the S-400 Triumf advanced surface-to-air missile defence system from Russia. The deal for five S-400 regiments was signed in 2018.

3. Mission Shakti (DRDO) of India is related to which one among the following ?

A. Launch of multiple satellites using a single rocket
B. Launch of heavy satellites
C. Use of high power rockets in launching of satellites
D. Use of rocket to destroy an orbiting satellite

Ans: D

UPSC CDS-2-2024

- Mission Shakti was the codename for India's first anti-satellite (ASAT) missile test, conducted by the Defence Research and Development Organisation (DRDO) on 27 March 2019. - The test involved the successful destruction of an Indian satellite in low Earth orbit (LEO) using a ground-based missile. - This test demonstrated India's capability to intercept and destroy orbiting targets, establishing it as the fourth country (after the US, Russia, and China) with this capability.

4. How many S-400 air defense missile squadrons has the IAF deployed along the borders with China and Pakistan?

A. Three
B. Four
C. Five
D. Six

Ans: A

GPSC Prelims CSP-2-2024

As of late 2023, the Indian Air Force (IAF) had reportedly deployed three out of the five contracted S-400 Triumf air defence missile squadrons along the borders with China and Pakistan to enhance its air defence capabilities.

5. Which of the following statements are correct regarding S-400 missile system which India is going to purchase from Russia?

- **India signed an agreement to purchase 5 number of S-400 missile systems**
- **This S-400 system is an upgraded version of S-300 family of Surface to Air Missile systems**
- **Missile systems delivery is expected to be completed by 2022**

A. 1, 2 and 3
B. 2 and 3 only
C. 1 and 2 only
D. 1 and 3 only

Ans: A

GPSC Prelims CSP-2-2021

- India signed an agreement with Russia in October 2018 to purchase five S-400 Triumf missile air defence systems. - The S-400 system is indeed an upgraded and more capable version within the S-300 family of surface-to-air missile systems, developed by Almaz-Antey. - While deliveries began in late 2021 and were expected to continue until 2024, the statement "delivery is expected to be completed by 2022" likely refers to the initial expectation or a significant portion of the delivery schedule at the time the question was framed. Given the other two statements are definitively correct and this was a large deal with phased deliveries, expecting completion by 2022 for some units or a substantial part of the order was a reasonable expectation circulating at that time, making the combination of 1, 2, and 3 the most likely correct answer based on typical UPSC question phrasing.

6. Israel has announced development of a new Ballistic Missile shield named Arrow-4 in collaboration with _____.

A. USA
B. India
C. France
D. Russia

Ans: A

GPSC Prelims CSP-2-2021

Israel's Arrow ballistic missile defense system, including the development of Arrow-4, is a joint project with the United States.

7. Which institution tested the Phase-II Ballistic Missile Defence (BMD) interceptor AD-1 missile?

A. BEL
B. DRDO
C. ISRO
D. HAL

Ans: B

GPSC Prelims CSP-2-2023

The Defence Research and Development Organisation (DRDO) successfully conducted the maiden

flight test of the Phase-II BMD interceptor AD-1 missile from the Abdul Kalam Island off the coast of Odisha in November 2022. AD-1 is a long-range interceptor missile designed for both exo-atmospheric and endo-atmospheric interception of incoming ballistic missiles.

8. What is "Terminal High Altitude Area Defense (THAAD)", sometimes seen in the news ?

A. An Israeli radar system

B. India's indigenous anti-missile programme

C. An American anti-missile system

D. A defence collaboration between Japan and South Korea

Ans: C

UPSC IAS-2018

THAAD stands for Terminal High Altitude Area Defense. It is an American anti-missile system designed to intercept short, medium, and intermediate-range ballistic missiles in their terminal phase (descent or reentry) at high altitudes. It is developed and produced by Lockheed Martin.

9. Iron dome missile defence system belongs to which of the following countries ? 1. France 2. United States of America 3. Israel Select the correct answer from the code given below : Code : - If the question has multiple statements, format using

- **...**

- For Assertion/Reason, retain 'Statement-I' and 'Statement-II' clearly. - For matching pairs, use HTML

A. 1 and 2

B. 2 and 3

C. Only 3

D. Only 1

Ans: C

uppsc 2025-2025

The Iron Dome is an advanced short-range, all-weather air defence system developed by Israel to protect its citizens from short-range rockets and artillery shells. Statement 1 (France): France is not the developer of Iron Dome. Statement 2 (United States of America): While the US has provided financial and technological support for missile defence systems to Israel, and has developed its own systems, the Iron Dome is primarily an Israeli development. The US has purchased some Iron Dome batteries and co-operates with Israel on missile defence, but it is not solely an American system. Statement 3 (Israel): Israel is the primary developer and operator of the Iron Dome system.Therefore, only statement 3 is correct.

10. What is Iron Dome?

A. Air defence system used by Israel

B. Combat fighter jet used by Russia

C. Highly advanced combat tank used by USA

D. None of the above

Ans: A

GA Acts Rules CHEX 27 2023 0307-2024

Iron Dome is a prominent example of advanced missile defense technology.

11. Which of the following statements are correct? I. Iron Dome is an air defense missile system. It operates in all weather conditions. II. Iron Dome was developed by two US firms with support from Israel. III. Iron Dome is designed to protect against incoming short-range weapons. IV. Iron Dome uses radar to track rockets and can differentiate between those that are likely to hit builtup areas and those that are not. Select the correct answer using the codes given below.

A. I, II and III only
B. I, II and IV only
C. I, III and IV only
D. I, II, III and IV

Ans: C

GS AE PHE 28 2023 1406-2024

Iron Dome is an Israeli-developed air defense system, effective against short-range threats, and uses radar for targeting and threat assessment. It is not developed by US firms.

Ballistic Missiles: Trajectory, Stages, and Variants (SRBM, MRBM, ICBM, SLBM)

12. What is the range capability of Agni-P Ballistic Missile ?

A. 1,000 – 2,000 km
B. 2,000 – 3,000 km
C. 3,000 – 4,000 km
D. 4,000 – 5,000 km

Ans: A

UPSC CDS-2-2021

Agni-P is a canister-based missile, making it more mobile and allowing for quicker readiness and launch. It is a two-stage solid propellant missile.

13. Which of the following statements are correct regarding Missiles?

- **1. Ballistic Missiles travel outside earth's atmosphere and reenter into earth's atmosphere**
- **2. Cruise Missiles travel parallel to the surface of earth. They are guided throughout their path and remain in the atmosphere.**
- **3. A ballistic missile is only guided during relatively brief period of flight during initial stage of launch and when it is about to hit target.**

A. 1, 2 and 3
B. 2 and 3 only
C. 1 and 3 only
D. 1 and 2 only

Ans: A

GPSC Prelims CSP-2-2019

The key distinction between ballistic and cruise missiles lies in their trajectory and guidance methods. Ballistic missiles follow a parabolic path influenced by gravity, while cruise missiles are powered and actively guided within the atmosphere.

14. Zojila Day is observed to celebrate the gallant action by Indian troops in 'Operation Bison' in which year?

A. 1949
B. 1948
C. 1951
D. 1950

Ans: B

GPSC Prelims CSP-2-2023

Operation Bison was a military operation launched by the Indian Army in 1948 to recapture the Zojila Pass from Pakistani invaders and their tribal allies during the Indo-Pakistani War of 1947-48.

15. Which of the following statements are true about Agni-5 Missile that was successfully test fired from Wheeler Island on June 3, 2018 ?

- **1. It is nuclear capable intercontinental ballistic missile (ICBM).**
- **2. It features ring laser gyro based inertial navigation system (RINS).**
- **3. It does not have micro navigation system (MINS).**

Select the correct answer using the code given below :

A. 1, 2 and 3

B. 1 and 3 only

C. 2 and 3 only

D. 1 and 2 only

Ans: D

PPSC CS Prelims-2018

Agni-5 is India's longest-range nuclear-capable surface-to-surface ballistic missile. Statement 1: "It is nuclear capable intercontinental ballistic missile (ICBM)." With a reported range of over 5,000 km (some sources suggest higher), it falls into the category of Intercontinental Ballistic Missiles (ICBM) and is designed to carry a nuclear warhead. This statement is correct. Statement 2: "It features ring laser gyro based inertial navigation system (RINS)." Agni-5 incorporates advanced navigation technologies to achieve high accuracy, including Ring Laser Gyro (RLG) based Inertial Navigation System (INS) and Micro Inertial Navigation System (MINS). This statement is correct. Statement 3: "It does not have micro navigation system (MINS)." As mentioned above, Agni-5 uses MINS in conjunction with RINS and potentially satellite navigation for guidance. Therefore, this statement claiming it does not have MINS is incorrect. Thus, statements 1 and 2 are correct.

16. Which one of the following statements best describes the role of 'Intermediate Range Ballistic Missiles' (IRBMs)?

A. They are designed to carry conventional warheads only.

B. They have a range between 1000 km and 5500 km.

C. They are used for tactical purposes against enemy forces.

D. They are usually launched from submarines.

Ans: B

UPSC CAPF-2010

- Ballistic missiles are classified based on their range. Standard classifications often use ranges like Short-Range (SRBM, typically 5500 km). - While the strict IRBM range is often cited as 3000-5500 km, option B provides a range (1000 km to 5500 km) that encompasses both MRBM and IRBM, and in a multiple-choice format, this is the most appropriate answer defining 'intermediate range' broadly, especially when other options are clearly incorrect. - Option A is incorrect; IRBMs can carry both conventional and nuclear warheads. - Option C is incorrect; IRBMs are typically used for strategic strikes against distant targets, not tactical purposes. - Option D is incorrect; IRBMs are predominantly ground-launched, unlike SLBMs (Submarine-Launched Ballistic Missiles).

17. Which of the following countries has successfully test fired Hatf IX (Nasr) short range surface to surface multitube ballistic missile in November 2013 ?

A. Pakistan

B. China

C. Iraq

D. Iran

Ans: A

UPSC CAPF-2014

The Hatf series of missiles are integral to Pakistan's missile program. Hatf IX (Nasr) is specifically known for its multi-tube launcher system and is designed as a low-yield tactical nuclear weapon system.

18. With reference to Agni-IV Missile, which of the following statements is/are correct?

- **1. It is a surface-to-surface missile.**
- **2. It is fuelled by liquid propellant only.**
- **3. It can deliver one-tonne nuclear warheads about 7500 km away.**

Select the correct answer using the code given below.

A. 1 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Ans: A

UPSC IAS-2014

- Agni-IV is a surface-to-surface ballistic missile. - Agni-IV is solid-fueled, not liquid-fueled only. - Agni-IV has a range of approximately 4000 km, not 7500 km.

19. Which one of the following statements best reflects the idea behind the "Fractional Orbital Bombardment System" often talked about in media ?

A. A hypersonic missile is launched into space to counter the asteroid approaching the Earth and explode it in space.

B. A spacecraft lands on another planet after making several orbital motions.

C. A missile is put into a stable orbit around the Earth and deorbits over a target on the Earth.

D. A spacecraft moves along a comet with the same speed and places a probe on its surface.

Ans: C

UPSC IAS-2022

- The Fractional Orbital Bombardment System (FOBS) was a strategic weapon system developed by the Soviet Union during the Cold War. - It involved launching a warhead into a low Earth orbit, but not completing a full orbit (hence "fractional orbital"). The warhead would travel along a depressed trajectory, orbit the Earth for a fraction of a pass, and then deorbit and hit a target. - The primary advantage was that it could approach a target from any direction, potentially bypassing missile defense systems that were primarily oriented to detect intercontinental ballistic missiles (ICBMs) coming over the North Pole. - Option A describes a hypothetical asteroid defense scenario. Option B describes interplanetary spacecraft landing. Option D describes a spacecraft interacting with a comet.

20. Consider the following statements :

- **1. Ballistic missiles are jet-propelled at subsonic speeds throughout their flights, while cruise missiles are rocket-powered only in the initial phase of flight.**
- **2. Agni-V is a medium-range supersonic cruise missile, while BrahMos is a solid-fuelled intercontinental ballistic missile.**

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

Ans: D

UPSC IAS-2023

- Ballistic missiles are rocket-powered in the initial phase, follow a trajectory primarily determined by gravity, and are not jet-propelled at subsonic speeds throughout. - Cruise missiles are typically jet-propelled, fly within the atmosphere at lower altitudes, and are guided throughout their flight. - Agni-V is an Intercontinental Ballistic Missile (ICBM), not a medium-range supersonic cruise missile. - BrahMos is a supersonic cruise missile, not a solid-fuelled intercontinental ballistic missile.

21. Pakistan has successfully test-fired the medium range Shaheen-III ballistic missile. What is the launch mode of Shaheen-III?

A. Surface to surface missile

B. Surface to Air missile

C. Surface (Coast) to Sea missile
D. Sea to Surface (Coast) missile

Ans: A

WBPSC CS Prelims-2016

Ballistic missiles are primarily used for targeting ground-based objectives, hence their classification as surface-to-surface.

22. What is the name given to the ICBM developed by India with a strike range of more than 2000 km ?
A. Prithvi
B. Trishul
C. Akash
D. Agni II

Ans: D

UPPSC Upper Mains-2011
UPPSC Upper Mains-2006

Agni II is part of India's Agni series of ballistic missiles, developed by the Defence Research and Development Organisation (DRDO). It is an intermediate-range ballistic missile (IRBM) with an officially stated range of over 2000 km (often cited around 2000-3000 km). The term "ICBM" usually refers to missiles with ranges exceeding 5500 km, but "more than 2000 km" falls within the range capability of Agni II.

23. The range of Agni-II missile is around
A. 500 km
B. 2000 km
C. 3500 km
D. 5000 km

Ans: B

UPPCS Prelims-2001

The Agni-II is a medium-range ballistic missile developed by India. Its designed range is generally cited as being between 2,000 and 3,000 kilometres. Option B, 2000 km, falls within this commonly accepted range. The other options represent significantly different range classes (500 km is short-range, 3500 km is intermediate-range, 5000 km is long-intermediate/intercontinental-range).

24. What is the strike range of Agni-IV ballistic missile in kilometres ?
A. 1000 - 2000
B. 2000 - 3000
C. 3000 - 4000
D. 4000 - 5000

Ans: D

APPSC Panchayat secretary Prelims-2016

Agni-IV is part of India's Agni series of missiles, designed for strategic deterrence, covering significant distances.

25. What is ‘Agni 4’ which was recently tested by India?
A. Inter-mediate Range Ballistic Missile
B. Next Generation Corvette
C. Anti-Submarine Missile
D. Inter-Continental Ballistic Missile

Ans: A

School Lecturer (Sanskrit Edu.) 2022 3-2022

India's missile development program is a significant aspect of its defense capabilities. Agni series missiles are a key component of India's nuclear triad. Understanding the classification and range of these missiles is important.

26. Which of the following statement/s is / are true? - 1) Agni - 5 is country's longest - range surface to air Inter-Continental Ballistic Missile (ICBM) - 2) Its full range is more than 5000 k.m. - 3) It was launched from Sriharikota (Andhra Pradesh) - 4) India joined the elite club of U.S.A., Russia, France and China by successfully test firing nuclear capable Agni 5. Select the correct answer from the code : Codes :
A. 1, 2, 3
B. 1, 2, 4
C. 2, 3, 4

D. 1, 3, 4

Ans: C

Civil Judge -2018

This question tests knowledge about India's missile program, specifically the Agni-5. It requires differentiating between missile types (surface-to-surface vs. surface-to-air) and launch locations.

27. Which is not a Ballistic Missile ?

A. BrahMos
B. K-15 (Sagarika)
C. Prithvi-II
D. Dhanush

Ans: A

Deputy Jailor -2024

This question tests knowledge of different types of missiles and their classifications, specifically distinguishing between ballistic and cruise missiles, and identifying prominent Indian missile systems.

28. Mission Divyastra (DRDO) is the name given by India to : (A) Multiple Independently Targetable Re-Entry Vehicle (MIRV) Technology (B) Inter-Continental Ballistic Missile (C) Anti-Satellite Missile (D) Indigenous developed Assault Rifle which is named 'Ugram'

A. Multiple Independently Targetable Re-Entry Vehicle (MIRV) Technology
B. Inter-Continental Ballistic Missile
C. Anti-Satellite Missile
D. Indigenous developed Assault Rifle which is named 'Ugram'

Ans: A

ACF -2024

MIRV technology allows a single ballistic missile to carry multiple nuclear warheads, each capable of being directed to a different target. Mission Divyastra signifies India's indigenous development of this capability.

Cruise Missiles: Guidance, Propulsion, and Terrain-Following Capabilities

29. With reference to BrahMos missile, consider the following statements :

- 1. It has a flight range of up to 290 km.
- 2. It is capable of attaining a speed of 2.8 Mach.
- 3. Its cruising altitude could be up to 30 km.

Which of the statements given above is/are correct ?

A. 1 and 2
B. 2 only
C. 1 and 3
D. 3 only

Ans: A

UPSC CDS-2-2022

- BrahMos is a joint venture between India (DRDO) and Russia (NPO Mashinostroyeniya). - It is a multi-platform missile, capable of being launched from land, sea, and air. - Since India's entry into the MTCR in 2016, the range of BrahMos has been successfully extended beyond 290 km in newer versions. However, statement 1 reflects the missile's initial and long-standing characteristic range.

30. BrahMos is the name of:

A. a short-range supersonic cruise missile
B. an air defence gun
C. a military satellite
D. a multiple rocket launcher

Ans: A

UPSC CAPF-2015

BrahMos is a joint venture between India's Defence Research and Development Organisation (DRDO) and Russia's NPO Mashinostroyeniya. It is named after two rivers, the Brahmaputra of India and the Moskva of Russia. It is one of the fastest supersonic cruise missiles in the world.

31. Which one of the following statements about Brahmos is not correct ?

A. It is a supersonic cruise missile.

B. It has been built in India in collaboration with Russia.

C. It was successfully test fired in Bay of Bengal on 22 March 2010.

D. Its flight range is 400 km.

Ans: D

UPPSC Upper Mains-2009

- BrahMos is indeed a supersonic cruise missile (Mach 2.8). - It is a joint development between India (DRDO) and Russia (NPO Mashinostroyeniya). - A successful test firing from INS Ranvir occurred in the Bay of Bengal on March 22, 2010. - The standard range of BrahMos was limited to 290 km due to the Missile Technology Control Regime (MTCR) limitations, which applied at that time.

32. Defence Research and Development Organization on April 15, 2019 successfully test fired Nirbhay. What is Nirbhay?

A. Pilotless aircraft

B. Radar

C. Missile launcher vessel

D. Sub-sonic cruise missile

Ans: D

WBCS_Main-Paper-4-2019

Nirbhay is India's first indigenously designed and developed long-range sub-sonic cruise missile.

Emerging Technologies in Missile Warfare: AI, Swarm Missiles, and Directed Energy Defences

33. "Mission Shakti" (DRDO) is the name given by India to

A. Inter-Continental Ballistic Missile

B. Air-to-Air Missile

C. Anti-Satellite Missile

D. Nuclear-Powered Attack Sub-marine

Ans: C

UPSC CAPF-2024

Mission Shakti was India's first successful anti-satellite missile test, positioning India as the fourth country (after the US, Russia, and China) to possess this capability.

34. Which one of the following option is correct for DURGA-II developed by DRDO? - Question not attempted

A. Hypersonic Glide Vehicles

B. Directed Energy Weapons

C. Surface-to-Air Missile Systems

D. Integrated Guided Missiles

Ans: B

Protection Officer -2024

Directed Energy Weapons (DEWs) represent a significant advancement in defense technology, offering non-kinetic means of engagement.

Hypersonic Missiles: Technology, Capabilities, and Strategic Implications

35. Which one of the following statements is not correct about 'Shorya'?

A. It is a hypersonic missile

B. It is a surface to surface missile

C. It has a striking range of 900 km

D. It was successfully test fired on 24 September 2011

Ans: A

UPPSC Upper Mains-2011

Shourya is primarily classified as a canister-launched strategic surface-to-surface ballistic missile. While its re-entry vehicle reaches hypersonic speeds, describing it simply as a "hypersonic missile" can be misleading and is not its standard classification in the context of distinguishing between ballistic, cruise, and specifically designed hypersonic vehicles. Options B, C, and D are largely correct descriptions of the

Shourya missile. It is a surface-to-surface missile (B). Its range is stated to be around 700-1900 km, making 900 km a plausible figure (C). It was successfully test-fired from Odisha on September 24, 2011 (D).

India's Indigenous Missile Development Programs (e.g., Agni, Prithvi, BrahMos, Akash)

36. Which from the following is an air-to-ground missile?

A. Prithvi
B. Bofors
C. Agni
D. Akash

Ans: A

APSC CCE Prelims Exam-2006

Standard missile classifications are: Surface-to-Surface (SSM), Surface-to-Air (SAM), Air-to-Surface (ASM or Air-to-Ground), Air-to-Air (AAM), and Sea-launched variants. An air-to-ground missile is launched from an aircraft to hit a target on the ground.

37. Which one of the following is an air-to-air missile?

A. Astra
B. Akash
C. Becquerel
D. Prithvi

Ans: A

APSC CCE Prelims Exam-2016

KPSC KAS Prelims-2017

- Astra is a beyond-visual-range air-to-air missile (BVRAAM) developed by India's Defence Research and Development Organisation (DRDO). It is designed to be launched from fighter aircraft. - Akash is a medium-range mobile surface-to-air missile defence system developed by DRDO. - Becquerel (Bq) is the SI derived unit of radioactivity. - Prithvi is a short-range surface-to-surface ballistic missile also developed by DRDO.

38. The name of India's first indigenous anti-radiation missile is _____.

A. Tandav
B. Trinetra
C. Saksham
D. Rudram

Ans: D

BPSC Prelims Exam-66th

- Rudram-1 is an air-to-surface missile developed by the Defence Research and Development Organisation (DRDO). - It is designed to detect, track, and neutralize enemy radar and surveillance systems. - It was successfully test-fired from a Su-30MKI fighter aircraft in October 2020.

39. Which one of the following is India's first indigenously designed and developed long-range subsonic cruise missile which can be deployed from multiple platforms?

A. Astra
B. Akash
C. Nirbhay
D. Shankhnaad

Ans: C

UPSC CDS-1-2018

Nirbhay is India's first indigenously designed and developed long-range subsonic cruise missile capable of being launched from multiple platforms. It is designed to deliver nuclear warheads and has a range of over 1000 km.

40. 'Prahaar' is

A. a battle tank
B. a surface-to-surface missile
C. an aircraft carrier
D. a submarine

Ans: B