



## ADVANCED MEDIUM TERM COMBAT AIRCRAFT – GS III MAINS

**Q.** Discuss about India's indigenous fifth-gen fighter jet Advanced Medium Combat Aircraft (AMCA). Why is it important? (10 marks, 150 words)

**News:** *Cabinet Committee on Security clears fifth generation Advanced Medium Combat Aircraft project*

### What's in the news?

- The Cabinet Committee on Security (CCS) has approved a **Rs 15,000 crore project** for the development of India's fifth-generation Advanced Medium Combat Aircraft (AMCA), marking a significant stride in indigenous defence capabilities.

### Advanced Medium Combat Aircraft (AMCA):

- The AMCA project aims to **design and manufacture a stealthy multirole fighter jet** to bolster the Indian Air Force's (IAF) combat fleet.
- It was first initiated in 2007.
- It is led by the **Aeronautical Development Agency (ADA) under the DRDO.**

### Features of AMCA:

#### 1. Stealth Technology:

- Equipped with advanced stealth features, the 25-tonne twin-engine aircraft will evade enemy radar detection, placing it on par with or even surpassing other fifth-generation stealth fighters globally.

#### 2. Fuel and Weapons Capacity:

- The aircraft will feature a concealed internal fuel tank with a capacity of 6.5 tonnes and an internal weapons bay for carrying a diverse range of weapons, including indigenous armaments.

#### 3. Engine Specifications:

- Initially powered by the US-built GE414 engine, the AMCA Mk2 variant will utilize a more powerful 110kN engine developed indigenously by DRDO's Gas Turbine Research Establishment (GTRE) in collaboration with foreign defense partners.

#### 4. Specialized Design Features:

- The AMCA will incorporate innovative design elements such as a diverterless supersonic inlet and a serpentine air intake duct to optimize engine performance and minimize radar emissions.



## Development Timeline and Prospects:

### 1. Flight Schedule:

- Following CCS approval, the ADA aims to conduct the first flight of the AMCA within four and a half to five years, with full development expected to span around a decade.

### 2. Manufacturing Partnerships:

- HAL will undertake aircraft production, with private industry collaboration anticipated to expedite the manufacturing process.

### 3. Operational Imperatives:

- The IAF's requirement for seven squadrons of AMCA underscores its pivotal role in augmenting India's air combat capabilities amid dwindling fighter squadron numbers.

## Global Context and Future Prospects:

### 1. Limited Fifth-Generation Fleet:

- While countries like the US, China and Russia possess fifth-generation stealth fighters, the AMCA will add India to this exclusive list, enhancing its strategic posture in the region.

### 2. IAF's Modernization Needs:

- Amidst retiring legacy aircraft, the induction of AMCA squadrons will address critical operational gaps, ensuring a potent air combat fleet for the future.

## Significance of the AMCA:

### 1. Indigenous Boost:

- AMCA project underscores India's quest for self-reliance in defence technology, following its withdrawal from the Fifth Generation Fighter Aircraft (FGFA) collaboration with Russia in 2018.

### 2. Stealth Advantages:

- As a fifth-generation fighter, the AMCA will possess low electromagnetic signature, enhancing survivability and lethality in modern combat scenarios.

### 3. Enhanced Capabilities:

- With advanced sensors and weaponry, the AMCA will be capable of detecting and engaging enemy aircraft while remaining undetected, offering a significant advantage over fourth-generation counterparts.

### 4. Operational Implications:

- The IAF's need for seven AMCA squadrons emphasizes the importance of increasing India's air combat capability in the face of diminishing fighter squadron numbers.



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## 5. Enhancing Strategic Posturing:

- While countries like the United States, China, and Russia have fifth-generation stealth fighters, the AMCA will add India to this exclusive list, strengthening its strategic position in the region.

## 6. Addressing Operational Gaps:

- As older aircraft are retired, the induction of AMCA squadrons will fill crucial operational gaps, guaranteeing a capable air combat force in the future.

The development of AMCA heralds a new era of indigenous defence manufacturing in India, underlining the nation's commitment to technological advancement and military modernization. With its advanced capabilities and stealth features, the AMCA promises to be a game-changer in the realm of aerial warfare, reinforcing India's position as a formidable force in the global defence arena.

