Group 2 Mains – Daily Practice: Questions and Model Answers (12 November 2026)

1. Unit I – Modern History of India (Tamil Nadu) · 15 marks · 250 words

Question: The Swadeshi Steam Navigation Company (1906) founded by V.O. Chidambaranar at Tuticorin completes 120 years this year, and 18.11.2026 is his 90th death anniversary. In this context, examine V.O.C.'s contribution to the freedom struggle in Tamil Nadu and assess the significance of the economic nationalism and the labour struggle that he led.

How to write

- Two directive verbs – "examine" (contribution) and "assess" (significance and limits); headings for the introduction, contribution, assessment, relevance today and conclusion
- tabulate five fields – economic nationalism, labour movement, mass mobilisation, sacrifice, Tamil scholarship – and draw the flowchart Partition of Bengal → Swadeshi → SSNCo → Coral Mill strike → arrest → prison
- write the dates correctly: October 1906 (₹10 lakh, 40,000 shares), 27.02.1908, 12.03.1908, 12.12.1912
- show both strengths and limits, and end with relevance today – the port named after him and the lesson of self-reliance

Model answer

Introduction

V.O. Chidambaranar (05.09.1872, Ottapidaram – 18.11.1936, Thoothukudi), hailed as "Kappalottiya Thamizhan" (the Tamil who sailed ships), was a lawyer, entrepreneur, labour leader and Tamil scholar. An Extremist, he turned the **Swadeshi Movement** against the Partition of Bengal (1905) into a mass movement in south Tamil Nadu. His shipping company turns 120 in 2026, and 18.11.2026 is his 90th death anniversary.

Partition of Bengal (1905) → **Swadeshi Movement** → **SSNCo (October 1906)** →
Coral Mill strike (1908) → **Arrest (12.03.1908) – Tirunelveli uprising** →
Prison – release (12.12.1912)

A) Contribution to the freedom struggle

Field	Contribution

Economic nationalism	**Swadeshi Steam Navigation Company** (SSNCo) – registered October 1906; capital ₹10 lakh (40,000 shares of ₹25); ships S.S. Gallia and S.S. Lavo; challenged the monopoly of the British India Steam Navigation Company, leading to a fare war.
Labour movement	The **Coral Mill strike** at Tuticorin (from 27.02.1908, about nine days) won higher wages, shorter hours and Sunday leave – it linked workers' rights to the national struggle.
Mass mobilisation	Arrested with Subramania Siva on 12.03.1908 → riots in Tirunelveli and a general strike in Tuticorin – among the first major political upsurges in south Tamil Nadu.
Sacrifice	Two life sentences (transportation) for sedition, reduced on appeal; rigorous imprisonment in Coimbatore and Cannanore jails (made to pull the oil press at Coimbatore); released 12.12.1912.
Tamil scholarship	Meyyaram (1914), Meyyarivu (1915), a Thirukkural commentary and an edition of the Tholkappiyam with Ilampooranar's commentary (1928) – nationalism through language.

B) Assessing economic nationalism and the labour struggle

Significance (strengths)	Limits
Linked political freedom with **economic freedom** – showed that Swadeshi meant not only boycott but a working Indian alternative.	State repression, the British company's fare war and financial strain made SSNCo decline within a few years.
Took the movement beyond the elite to **workers, traders and ordinary people**.	The movement weakened once the leaders were jailed; there was no lasting organisation.
Spread Extremist nationalism in the south; a forerunner of the later trade union movement.	He lived in poverty after release; left the Congress in 1920 and rejoined in 1927 (presided over the Salem conference).

C) Relevance today and the way forward

- Tuticorin port is named after him (today the V.O. Chidambaranar Port Authority under the Major Port Authorities Act, 2021); centenary stamp 05.09.1972; his 150th birth anniversary (05.09.2021) was observed as a State function.
- Lesson: domestic shipping, port-led industry and labour welfare are the base of economic self-reliance; his life should reach the next generation through the curriculum, museums and digital archives.

Conclusion

By turning a ship into a weapon against British economic exploitation, V.O.C. showed in action that **political freedom without economic freedom is incomplete**; his sacrifice is a shining page in Tamil Nadu's freedom story.

Scoring tips (faculty note): "Examine" (contribution) and "assess" (significance of economic nationalism and the labour struggle) – give each a heading and state the limits too. Dates earn marks: 1872, October 1906, 27.02.1908, 12.03.1908, 12.12.1912, 18.11.1936; ₹10 lakh / 40,000 shares. Use terms like "economic nationalism", "Swadeshi enterprise" and "political strike"; a one-line link to Subramania Siva and Bharathiyar helps. Do not write a biography; place the cause → action → result flowchart right after the introduction.

About 390 words (including tables, excluding the tip box) · 2 tables + 1 flowchart · time: 12 minutes.

Reference notes

Key facts

- News hook: SSNCo was registered in October 1906 – 120 years in 2026; V.O.C. died on 18.11.1936 – 90th death anniversary on 18.11.2026.
- 150th birth anniversary (05.09.2021): observed as a State function; a 14-point announcement including renovation of memorials and an award in his name; a main road in Tuticorin named after him; the Prime Minister's tribute recalled his efforts for self-reliance in ports and shipping (DT Next, 05.09.2021).
- Timeline: born 05.09.1872 at Ottapidaram; SSNCo registered October 1906 – capital ₹10 lakh in 40,000 shares of ₹25; ships S.S. Gallia and S.S. Lavo. Speech to Coral Mill workers 23.02.1908; strike from 27.02.1908 for about nine days, won higher wages, shorter hours and Sunday leave. Arrested with Subramania Siva on 12.03.1908 → riots in Tirunelveli and a general strike in Tuticorin. Two life sentences (transportation) for sedition, reduced on appeal; Coimbatore jail, then Cannanore; released 12.12.1912. 17.06.1911 – Vanchinathan shot Collector Ashe at Maniyachi. Left the Congress in 1920; rejoined in 1927, presiding over the Salem conference. Died at Thoothukudi 18.11.1936.
- Tamil works: Meyyaram (1914), Meyyarivu (1915), Thirukkural commentary, Tholkappiyam with Ilampooranar's commentary (1928), an autobiography.
- Memorials: Tuticorin port – V.O. Chidambaranar Port Authority (Major Port Authorities Act, 2021); centenary stamp 05.09.1972.
- Value-add terms: economic nationalism, Swadeshi enterprise, monopoly, fare war, political strike, Extremism.

2. Unit IV – Science and Technology in Development · 15 marks · 250 words

Question: The indigenously designed and built 500 MWe Prototype Fast Breeder Reactor (PFBR) at Kalpakkam attained first criticality on 06.04.2026. In this context, explain India's three-stage nuclear power programme and assess Tamil Nadu's role in the power and non-power applications of nuclear energy, along with the challenges involved.

How to write

- Two directive verbs – "explain" (the three stages) and "assess" (Tamil Nadu's role, uses, challenges); headings for the introduction, three stages, Tamil Nadu, applications, challenges, way forward and conclusion
- draw a stage – reactor – fuel – outcome table and the flowchart uranium → plutonium → fast breeder → U-233 → thorium
- add MAPS (2×220), Kudankulam (2×1,000 operating; 3–6 under construction) and PFBR (500) – Tamil Nadu 2,440 MW (about 28%)
- cover medicine, agriculture and food irradiation, give a balanced view of safety, waste and the SHANTI Act 2025, and end with SMRs and 100 GW by 2047

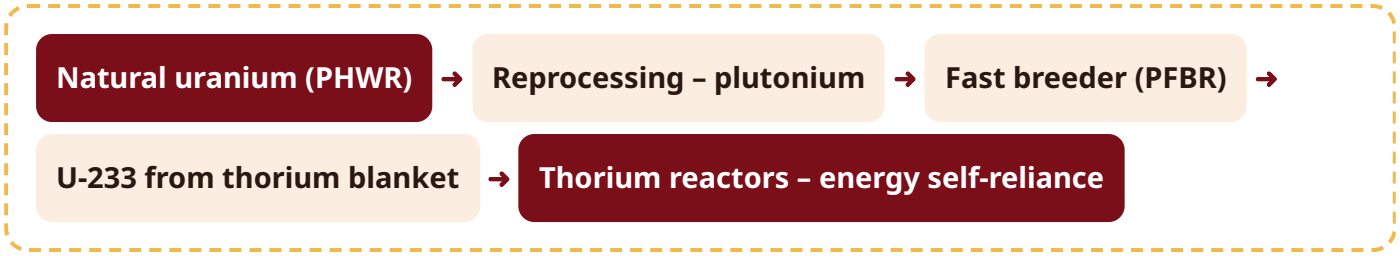
Model answer

Introduction

The **500 MWe Prototype Fast Breeder Reactor (PFBR)** at Kalpakkam, designed by IGCAR and built by BHAVINI, attained **first criticality** (the start of a controlled fission chain reaction) at 8.25 pm on 06.04.2026 – a milestone for the second stage of India's three-stage nuclear programme. India's installed nuclear capacity is 8,780 MW (24 reactors), about 3.1% of electricity generation (2024-25).

A) The three-stage programme (Homi J. Bhabha)

Stage	Reactor / fuel	Outcome / status
1	Pressurised Heavy Water Reactor (PHWR) – natural uranium	Power + plutonium-239 in spent fuel; e.g. MAPS, Kalpakkam (2×220 MW)
2	Fast Breeder Reactor (FBR) – uranium-plutonium mixed oxide (MOX) fuel, liquid sodium coolant, U-238 blanket	"Breeds" more fuel than it burns (U-238 → Pu-239); later thorium-232 → uranium-233; PFBR criticality 06.04.2026
3	Thorium-based reactors – thorium-232 / uranium-233	Uses the large thorium resources in coastal monazite sands for long-term energy security



B) Tamil Nadu's role

Station	Capacity	Status
MAPS, Kalpakkam	2 × 220 MW	MAPS-1 under renovation; MAPS-2 operating
Kudankulam 1, 2 (with Russia)	2 × 1,000 MW	Operating – over 121 billion units generated so far
Kudankulam 3–6	4 × 1,000 MW	Under construction; key commissioning test on Unit 3 on 25.04.2026; the site will reach 6,000 MW
PFBR, IGCAR (Kalpakkam)	500 MWe	Heart of stage 2; research and design

Of India's 8,780 MW installed capacity (24 reactors, including units under renovation such as MAPS-1), Tamil Nadu hosts **2,440 MW (about 28%)** – the highest of any State.

C) Non-power applications

- **Medicine:** cobalt-60 cancer teletherapy (BARC's "Bhabhatron"), radioisotope diagnosis.
- **Agriculture and food:** radiation-induced mutant seeds (Trombay groundnut varieties); food irradiation to stop sprouting of onion and potato.
- **Industry and water:** radiography to test welds; the nuclear desalination demonstration plant at Kalpakkam.

D) Challenges

Challenge	Explanation
Safety fears	Kudankulam protests after Fukushima (2011); the Supreme Court allowed operation on 06.05.2013 with safety directions.
Waste, cost, delay	Storage of spent fuel; high capital cost; PFBR delayed by many years.
Law and liability	SHANTI Act, 2025 repeals the Atomic Energy Act, 1962 and the Civil Liability for Nuclear Damage Act, 2010; opens the sector to private players – debate on liability.

E) Way forward

- Target of 100 GW by 2047; Nuclear Energy Mission – ₹20,000 crore for Small Modular Reactors (SMRs), at least five indigenous SMRs by 2033.

- Transparency, consultation with local people, a strong regulator (AERB), a permanent waste solution and priority for thorium research.

Conclusion

Kalpakkam and Kudankulam are the **two pillars** of India's nuclear programme; with safety and public trust ensured, Tamil Nadu can lead the clean-energy transition towards net zero by 2070.

Scoring tips (faculty note): "Explain" (the three stages) and "assess" (Tamil Nadu's role, uses and challenges) – separate headings; the three-stage table is a must. Numbers: 06.04.2026, 500 MWe, 8,780 MW / 24 reactors, 3.1%, 2,440 MW (about 28%), 6,000 MW, 100 GW by 2047. Use the science terms correctly – breeder, criticality, MOX, thorium – they earn marks in the science unit. Do not ignore safety fears; balance them with the Supreme Court verdict.

About 420 words (including tables, excluding the tip box) · 3 tables + 1 flowchart · time: 12 minutes.

Reference notes

Key facts

- DAE press release: PFBR attained first criticality at 8.25 pm on 06.04.2026; 500 MWe; uranium-plutonium mixed oxide (MOX) fuel; liquid sodium coolant; a U-238 blanket around the core is converted by fast neutrons into Pu-239; later a thorium-232 blanket → U-233 for stage 3. Designed by IGCAR; built and commissioned by BHAVINI (a DAE PSU). When fully operational, India will be the second country after Russia to run a commercial fast breeder reactor (PIB factsheet).
- Lok Sabha Starred Q. 251 (17.12.2025): 24 reactors in commercial operation, 8,780 MW (excluding RAPS-1); TAPS-1, 2, MAPS-1 and KGS-1 (760 MW) under renovation. Under construction: 8 reactors, 6,600 MW – RAPP-8 (700), Kudankulam 3–6 (4×1,000), Gorakhpur 1, 2 (2×700), PFBR (500).
- PIB factsheet: nuclear generation 2024-25 – 56,681 million units, 3.1% of electricity; 22.38 GW by 2031-32; 100 GW by 2047 (Nuclear Energy Mission, Union Budget 2025-26); ₹20,000 crore for SMRs, at least 5 indigenous SMRs by 2033; BARC – BSMR-200, SMR-55; agreements with 18 countries.
- SHANTI Act, 2025 (Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India): Presidential assent December 2025; repeals the Atomic Energy Act, 1962 and the Civil Liability for Nuclear Damage Act, 2010; licensed private companies and joint ventures may build and run nuclear plants (All India Radio, 22.12.2025).
- Tamil Nadu: MAPS 2×220 MW (MAPS-1 under renovation); Kudankulam 1, 2 – 2×1,000 MW, over 121 billion units, about 104 million tonnes of CO_2 avoided (NPCIL); Kudankulam 3–6 – 4×1,000 MW, Unit 3 began "Spillage to Open Reactor" on 25.04.2026; 6,000 MW when all six units are complete (ANI, 28.04.2026). Tamil Nadu = 440 + 2,000 = 2,440 MW of 8,780 MW in operation (about 28%).
- Supreme Court (06.05.2013) allowed Kudankulam to operate, with directions on safety and waste management.
- Value-add terms: first criticality, breeder, closed fuel cycle, Small Modular Reactor, base-load power, food irradiation, net zero.

3. Unit VII – Indian Economy (Tamil Nadu) · 15 marks · 250 words

Question: The Sixteenth Finance Commission (2026-31) has kept the States' share of tax devolution at 41% and added a new criterion, "contribution to the national GDP", to the horizontal devolution formula. Explain the role of the Finance Commission in Union–State revenue sharing and assess the impact of its recent recommendations on Tamil Nadu.

How to write

- Two directive verbs – "explain" (role of the FC) and "assess" (impact on Tamil Nadu); headings for the introduction, role, change in formula, impact, way forward and conclusion
- draw a 15th vs 16th FC criteria table and the flowchart gross tax → divisible pool → 41% → formula → Tamil Nadu 4.097%
- use Tamil Nadu 4.079 → 4.097% (a relative rise of 0.44%), the Karnataka and Kerala comparison, local body grants of ₹7,91,493 crore and the 3% of GSDP cap
- show both gains and concerns and end with the way forward – cesses and surcharges, local body conditions, own revenue; stay neutral

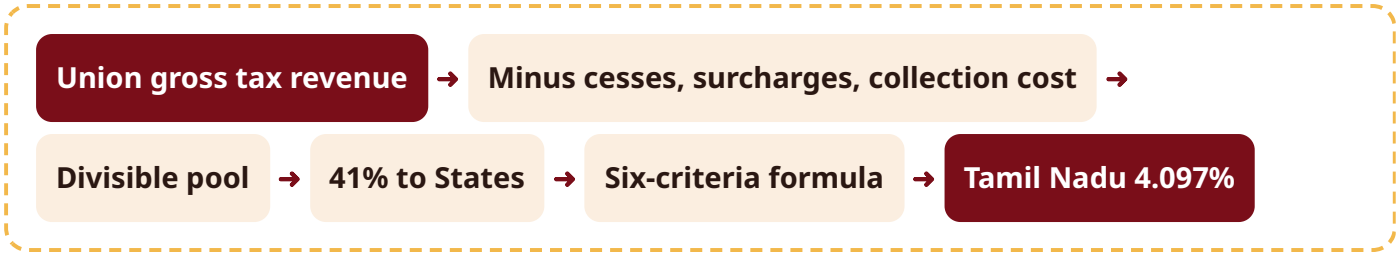
Model answer

Introduction

The Finance Commission, set up every five years under **Article 280**, is the balancing wheel of Union–State revenue sharing. The **Sixteenth Finance Commission**, chaired by Dr Arvind Panagariya, submitted its report to the President on 17.11.2025; it was laid in Parliament with the Action Taken Report on 01.02.2026. Its award covers 2026-27 to 2030-31.

A) Role of the Finance Commission in revenue sharing

Function	Explanation
Vertical devolution	States' share of the divisible pool of Union taxes – kept at **41%** by the 16th FC.
Horizontal devolution	A formula to share among States (need + equity + performance).
Grants (Article 275)	Local body and disaster grants; the 16th FC recommended no revenue deficit, sector-specific or State-specific grants.
Fiscal discipline	State fiscal deficit at 3% of GSDP; the Union at 3.5% of GDP by 2030-31 (recommended; the Union will examine it separately); off-budget borrowing to end.



B) Change in the horizontal formula

Criterion	15th FC	16th FC
Income distance	45%	42.5%
Population (2011)	15%	17.5%
Demographic performance	12.5%	10%
Area	15%	10%
Forest	10%	10%
Tax and fiscal effort	2.5%	Dropped
Contribution to GDP	–	**10% (new)**

C) Impact on Tamil Nadu – an assessment

Gains	Concerns
Share 4.079% → **4.097%** – a small rise; the "contribution to GDP" criterion rewards industrialised Tamil Nadu for the first time.	The rise is only **0.44%** (a relative rise – just 0.018 percentage point); Karnataka (3.647 → 4.131%) and Kerala (1.925 → 2.382%) gained more; 42.5% weight for income distance still hurts richer States.
10% for demographic performance rewards Tamil Nadu's success in population control.	Cesses and surcharges stay outside the divisible pool – the State Government (February 2026) called the report "a great disappointment".
Local body grants of ₹7,91,493 crore; disaster funds (SDRF + SDMF) of ₹2,04,401 crore – vital for cyclone-prone Tamil Nadu.	Local body grants need entry conditions – constituted local bodies, published accounts, a State Finance Commission; the 3% fiscal deficit cap.

D) Way forward

- Cap cesses and surcharges or bring them into the divisible pool – joint dialogue through the GST Council and the Inter-State Council.
- Complete local body elections, the State Finance Commission and audits on time to draw the full grants.
- Raise own tax revenue, rationalise subsidies and manage debt.

Conclusion

Adding "efficiency" to "equity" is the right direction for the 16th FC; but **cooperative federalism** must grow so that high-contributing States like Tamil Nadu receive a fair share.

Scoring tips (faculty note): "Explain" (role of the FC) and "assess" (impact on Tamil Nadu) – separate headings; both gains and concerns are a must. The 15th vs 16th criteria table is the heart of the answer; numbers: 41%, 4.079 → 4.097%, 42.5 / 17.5 / 10, ₹7,91,493 crore, 3% of GSDP. Cite Articles 270, 275 and 280; terms like "divisible pool" and "fiscal federalism" earn marks. No party or leader names – write "the State Government" and stay neutral.

About 420 words (including tables, excluding the tip box) · 3 tables + 1 flowchart · time: 12 minutes.

Reference notes

Key facts

- Sixteenth Finance Commission (Chair: Dr Arvind Panagariya): report to the President 17.11.2025; laid in Parliament with the Explanatory Memorandum (Action Taken Report) on 01.02.2026; award 2026-27 to 2030-31 from 01.04.2026; States' share 41%; no revenue deficit, sector-specific or State-specific grants (Union Ministry of Finance – indiabudget.gov.in).
- Inter-se shares, 15th → 16th FC: Tamil Nadu 4.079 → 4.097; Karnataka 3.647 → 4.131; Kerala 1.925 → 2.382; Andhra Pradesh 4.047 → 4.217; Telangana 2.102 → 2.174 (The South First, 01.02.2026; Deccan Herald).
- State Government reaction (interim Budget, February 2026): "a great disappointment"; only a 0.44% rise for Tamil Nadu; concerns on cesses and surcharges not reflected; the State estimated a loss of ₹3.17 lakh crore from the long fall in its share (Asianet Newsable, 17.02.2026).
- Horizontal criteria, 15th → 16th FC (%): income distance 45 → 42.5; population (2011) 15 → 17.5; demographic performance 12.5 → 10; area 15 → 10; forest 10 → 10; tax and fiscal effort 2.5 → dropped; contribution to GDP – → 10 (Business Today, 01.02.2026).
- Grants 2026-31: local bodies ₹7,91,493 crore – basic and performance components split 60:40 rural:urban, 80:20 basic:performance; urbanisation premium ₹10,000 crore; special infrastructure component ₹56,100 crore. Disaster: SDRF + SDMF ₹2,04,401 crore (SDRF ₹1,63,521 crore; SDMF ₹40,880 crore), Union share ₹1,55,915.85 crore; NDRF + NDMF ₹79,406 crore; cost sharing 75:25 (90:10 for north-eastern and Himalayan States).
- Fiscal path: State fiscal deficit 3% of GSDP (excluding SASCI loans); Union 3.5% of GDP by 2030-31.
- Constitution: Art. 270 (sharing of Union taxes), Art. 275 (grants), Art. 280 (Finance Commission; 280(3)(bb), (c) – resources of panchayats and municipalities), Arts. 243-I and 243Y (State Finance Commission).
- Value-add terms: divisible pool, vertical / horizontal devolution, fiscal federalism, equity–efficiency balance, cooperative federalism.