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Class: X	**Subject:** Social Science	**Session:** 2025-26
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Chapter 5 : Mineral and Energy Resources

SECTION A : Multiple Choice Questions **(1 Mark Each)**

Q1. Which of the following is a ferrous mineral? [CBSE 2023] [1]

(a) Bauxite (b) Copper (c) Iron ore (d) Gold

Ans: (c) Iron ore. Ferrous minerals contain iron - iron ore, manganese, chromite, nickel. India has large deposits of iron ore in Jharkhand, Odisha, Chhattisgarh, and Karnataka.

Q2. Mica is mainly found in: [CBSE 2022] [1]

(a) Punjab (b) Jharkhand, Bihar, Rajasthan (c) Goa (d) Gujarat

Ans: (b) Jharkhand, Bihar, Andhra Pradesh, and Rajasthan. India is a leading producer and exporter of mica, used in electrical and electronic industries.

Q3. Which type of coal has the highest carbon content? [CBSE 2024] [1]

(a) Peat (b) Lignite (c) Bituminous (d) Anthracite

Ans: (d) Anthracite. It has the highest carbon content (over 80%), is the hardest coal, and produces the most heat. Found in small quantities in Jammu & Kashmir.

Q4. The largest producer of bauxite in India is: [CBSE 2021] [1]

(a) Jharkhand (b) Odisha (c) Gujarat (d) Kerala

Ans: (b) Odisha. Bauxite (aluminium ore) is found in Odisha, Gujarat, Jharkhand, MP, Chhattisgarh, Tamil Nadu, and Maharashtra. Used in making aluminium.

Q5. Natural gas is found along with: [CBSE 2020] [1]

(a) Coal deposits (b) Petroleum deposits (c) Iron ore deposits (d) Mica deposits

Ans: (b) Petroleum deposits. Natural gas is found in association with petroleum in oil fields. Major sources: Mumbai High, Krishna-Godavari basin, Gujarat, Assam.

Q6. Which of the following is a non-conventional source of energy? [CBSE 2023] [1]

(a) Coal (b) Petroleum (c) Solar energy (d) Natural gas

Ans: (c) Solar energy. Non-conventional/renewable sources include solar, wind, tidal, geothermal, and biogas. They are cleaner and inexhaustible.

Q7. India's largest solar power plant is in: [CBSE 2024] [1]

(a) Rajasthan (b) Gujarat (c) Tamil Nadu (d) Madhya Pradesh

Ans: (a) Rajasthan. The Bhadla Solar Park in Jodhpur, Rajasthan is one of the world's largest solar power installations, with capacity exceeding 2,000 MW.

Q8. NTPC stands for: [CBSE 2022] [1]

(a) National Thermal Power Corporation
(b) National Trade and Promotion Centre
(c) New Technology Power Commission
(d) Northern Thermal Plant Corporation

Ans: (a) National Thermal Power Corporation. NTPC is India's largest power generating company, operating thermal, hydro, solar, and wind power plants.

Q9. The Koyna dam is an example of: [CBSE 2021] [1]

(a) Thermal power (b) Hydroelectric power (c) Nuclear power (d) Wind power

Ans: (b) Hydroelectric power. Located on Koyna River in Maharashtra, it is one of India's largest hydroelectric power plants.

Q10. Assertion (A): India needs to develop non-conventional energy sources. Reason (R): Fossil fuels are limited and cause pollution. [CBSE 2024] [1]

(a) Both true and (R) correctly explains (A)
(b) Both true but (R) does not explain (A)
(c) (A) is true but (R) is false
(d) (A) is false

Ans: (a) Both true and (R) correctly explains (A). Coal and petroleum will run out in decades and cause pollution. India must shift to solar, wind, and nuclear energy.

SECTION B : Short Answer Questions (3 Marks Each)

Q11. Distinguish between ferrous and non-ferrous minerals with examples. [CBSE 2023] [3]

- **Ferrous:** Contain iron. Form the basis of metallurgical industries. E.g., iron ore, manganese, chromite, nickel, cobalt, tungsten. India is rich in iron ore.
- **Non-Ferrous:** Do not contain iron. Include bauxite (aluminium), copper, gold, silver, lead, zinc, tin. India has deposits of bauxite and copper.
- **Importance:** Ferrous minerals account for about 75% of total mineral production by value. Both types are essential for industrial development.

Q12. Why is energy conservation important? Suggest methods. [CBSE 2024] [3]

- **Limited Resources:** Fossil fuels (coal, petroleum, natural gas) are non-renewable. At current consumption rates, they may be exhausted within decades.
- **Environmental Damage:** Burning fossil fuels causes air pollution, acid rain, and global warming. India is one of the world's largest carbon emitters.
- **Methods:** Use public transport, LED lights, energy-efficient appliances, solar heaters. Industries should adopt cleaner technologies. Switch to renewable energy sources.

Q13. Describe the distribution of iron ore in India. [CBSE 2022] [3]

- **Odisha:** Largest producer. Major deposits in Sundargarh, Mayurbhanj, and Jhar districts. High-quality hematite and magnetite ores.
- **Jharkhand:** Rich deposits in Singhbhum district. Known for high-grade hematite ore. Important for the Jamshedpur steel industry.
- **Other States:** Chhattisgarh (Durg, Bastar), Karnataka (Bellary, Chitradurga), Goa, and Maharashtra. India is among the world's top iron ore producers.

Q14. What are the advantages of non-conventional energy sources? [CBSE 2021] [3]

- **Renewable:** Solar, wind, tidal, and geothermal energy are inexhaustible. Unlike fossil fuels, they will never run out if harnessed sustainably.
- **Clean Energy:** They produce little or no pollution, greenhouse gases, or toxic waste. They help combat climate change and air pollution.
- **Rural Development:** Solar and biogas energy can electrify remote villages, reduce dependence on firewood, improve health, and enable education and development.

Q15. Explain why minerals need to be conserved. [CBSE 2020] [3]

- **Non-Renewable:** Minerals take millions of years to form. Once exhausted, they cannot be replaced. Mining at current rates will deplete many within decades.
- **Essential for Industry:** Iron, copper, bauxite, and other minerals are the backbone of modern industry. Without them, manufacturing and construction would stop.
- **Conservation Methods:** Use minerals efficiently, recycle metals, develop substitutes, reduce waste in mining and processing, and explore new deposits through advanced technology.

SECTION C : Long Answer Questions (5 Marks Each)

Q16. "India is richly endowed with minerals yet we need to conserve them." Justify with reasons and methods. [CBSE 2024] [5]

Ans: Despite mineral wealth, conservation is essential:

- **Formation Time:** Minerals take millions of years to form through geological processes. They are non-renewable in human timescale. Current extraction is unsustainable.
- **Rising Demand:** Industrialisation and urbanisation are increasing mineral consumption rapidly. India's steel, cement, and manufacturing sectors need enormous quantities.
- **Uneven Distribution:** Mineral deposits are concentrated in a few states (Jharkhand, Odisha, Chhattisgarh). Other regions depend on imports and inter-state trade.
- **Environmental Cost:** Mining causes deforestation, water pollution, land degradation, and displacement of communities. Environmental restoration is slow and expensive.
- **Conservation Methods:** Reduce wastage in mining, recycle metals extensively, develop alternatives (aluminium for copper), use technology for efficient extraction, and plan mineral use.

Q17. Describe the conventional and non-conventional sources of energy in India. [CBSE 2023] [5]

Ans: India uses both conventional and non-conventional energy:

- **Coal:** India's primary energy source (~55% of power). Found in Jharkhand, Odisha, Chhattisgarh, WB. Cheap but polluting and non-renewable.
- **Petroleum:** Used mainly for transport and as industrial raw material. Found in Mumbai High, Assam, Gujarat, Krishna-Godavari basin. India imports over 80% of its oil.
- **Hydroelectricity:** Clean and renewable. Major dams: Bhakra Nangal, Hirakud, Tehri. Contributes about 10% of total power generation.
- **Solar Energy:** India receives abundant sunshine. National Solar Mission aims for 500 GW renewable energy by 2030. Rajasthan, Gujarat lead in solar installations.
- **Wind Energy:** India is among top 5 wind energy producers globally. Major wind farms in Tamil Nadu, Gujarat, Rajasthan, Maharashtra, and Karnataka.

Q18. Explain the distribution of coal in India and its importance. [CBSE 2022] [5]

Ans: Coal is India's most important fossil fuel:

- **Gondwana Coal:** About 98% of India's coal reserves. Found in river valleys of Damodar (Jharkhand-WB), Mahanadi (Chhattisgarh-Odisha), Godavari, and Son valleys.
- **Tertiary Coal:** Found in NE states (Meghalaya, Assam) and Jammu & Kashmir. Lower quality (lignite). Neyveli in Tamil Nadu has major lignite deposits.
- **Leading States:** Jharkhand (Jharia, Bokaro, Dhanbad), Odisha, Chhattisgarh, West Bengal (Raniganj), Madhya Pradesh, and Telangana.
- **Importance:** Coal provides over 55% of India's electricity. It fuels thermal power plants, steel industry, cement, and other heavy industries.
- **Challenge:** Coal is a major source of air pollution and carbon emissions. India is gradually shifting towards cleaner energy while still depending heavily on coal.

Q19. Why is solar energy gaining importance in India? Explain its potential. [CBSE 2021] [5]

Ans: India has enormous solar energy potential:

- **Abundant Sunshine:** India receives about 300 sunny days per year in most parts. The Thar Desert alone can generate enough solar power for the entire country.
- **Government Push:** National Solar Mission and International Solar Alliance (founded by India) aim to make solar energy mainstream. Target: 500 GW renewable by 2030.
- **Cost Reduction:** Solar panel costs have fallen by over 80% in the last decade, making solar power cheaper than coal in many parts of India.
- **Rural Electrification:** Solar energy can electrify remote villages without expensive grid extension. Solar lights, pumps, and heaters improve rural quality of life.
- **Climate Benefits:** Solar is zero-emission energy. Shifting to solar will help India meet its Paris Agreement commitments and reduce dependence on imported oil.

Q20. Explain the importance of petroleum and natural gas as energy resources. [CBSE 2020] [5]

Ans: Petroleum and natural gas are vital energy resources:

- **Transport Fuel:** Petroleum provides petrol, diesel, and aviation fuel. India's entire transport sector depends on it. Also used for plastics, fertilizers, and chemicals.
- **Industrial Use:** Natural gas is used for power generation, fertilizer production, and as a clean fuel for industries and households (CNG/PNG).
- **Distribution:** Major oilfields: Mumbai High (offshore), Gujarat (Ankleshwar), Assam (Digboi), and Krishna-Godavari basin. Pipelines transport oil and gas across India.
- **Import Dependence:** India imports over 80% of its petroleum, making the economy vulnerable to global price fluctuations and supply disruptions.

- **Conservation:** Use public transport, CNG vehicles, improve fuel efficiency, develop electric vehicles, and expand domestic exploration to reduce oil dependence.

--- End of Chapter 5 PYQ ---

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