

CBSE CLASS X
Social Science (087)**ANSWER KEY***From previous CBSE Board Exam questions***Code: 10D4F7****Questions: 40****Maximum Marks: 103****Generated: 2026-06-15 13:05****SELECTIONS USED**

Source	Previous-year board
Subject	Social Science
Lessons	Minerals and Energy Resources
Year	2022-2026
Questions selected	40

Composition — Types: 13 MCQ · 12 Long · 7 Very short · 3 Assertion–reason · 3 map_skill · 2 fill_in_blank · 2 source_based · 1 Short

Q1. § ACTIVITY**[1]**

Match Column-I with Column-II and choose the correct option.

Column-I (Minerals) | Column-II (Examples)

I. Ferrous | a. Coal

II. Non-Ferrous | b. Granite

III. Non-Metallic | c. Bauxite

IV. Energy | d. Cobalt

(A) I-b, II-d, III-c, IV-a

(B) I-d, II-c, III-b, IV-a

(C) I-a, II-b, III-d, IV-c

(D) I-c, II-d, III-b, IV-a

Previously asked in: 2024 32/3/1 Q2

◆ **Minerals and Energy Resources**

Classification of Minerals: Ferrous, Non-Ferrous, Non-Metallic, and Energy Minerals

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag**Model Answer**The correct answer is **(B) I-d, II-c, III-b, IV-a**

Cobalt is ferrous; Bauxite is non-ferrous; Granite is non-metallic; Coal is an energy mineral.

Explanation

- **Ferrous minerals** contain iron (e.g., iron ore, cobalt, nickel, manganese). Cobalt is ferrous.
- **Non-ferrous minerals** do not contain iron but contain other metals — Bauxite (aluminium ore) is a classic example.
- **Non-metallic minerals** include Granite, limestone, mica etc.
- **Energy minerals** include Coal, petroleum, natural gas. Coal is explicitly mentioned in the chapter as an energy mineral.

Eliminate wrong options by checking even one correct pair — Coal = Energy (IV-a) is confirmed in the passage.

Q2. § ACTIVITY**[1]**

Choose the correct option to fill the blank.

Non Metallic Mineral : Mica

Energy Mineral :

- (A) Natural Gas
- (B) Bauxite
- (C) Manganese
- (D) Platinum

Previously asked in: 2024 32/2/1 Q5

♦ Minerals and Energy Resources

Classification of Minerals: Metallic, Non-Metallic, and Energy Minerals

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer

The correct answer is **(A) Natural Gas**.

Just as Mica is a Non-Metallic Mineral, Natural Gas is an Energy Mineral (source of energy).

Explanation

The analogy tests knowledge of mineral classification. Mica is a non-metallic mineral; Natural Gas is an energy mineral (fossil fuel used for energy). Bauxite is a non-ferrous metal ore, Manganese is a ferrous mineral, and Platinum is a precious metal — none are energy minerals.

Q3. § What is a mineral? § MODE OF OCCURRENCE OF MINERALS § ACTIVITY

[5]

"Minerals are found in various forms and types, each having distinct properties." Support the statement with suitable arguments.

Previously asked in: 2026 32/5/1 Q17(b)

♦ Minerals and Energy Resources

Properties and Occurrence of Minerals

Types and Forms of Minerals

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer

Minerals exist in varied forms with distinct properties because of the differences in physical and chemical conditions under which they are formed. This can be supported as follows:

1. **Range of hardness:** Minerals range from the hardest diamond to the softest talc, showing wide variation in physical properties.
1. **Varied properties:** Depending on the combination of elements and conditions of formation, minerals differ in colour, hardness, crystal form, lustre and density.
1. **Occurrence in different rock types:** Minerals form in igneous, metamorphic and sedimentary rocks through different processes — as veins/lodes, beds/layers, residual deposits, placer deposits, or dissolved in ocean water.
1. **Different modes of formation:** Some form by evaporation (gypsum), some by weathering/decomposition (bauxite), some by deposition under heat and pressure (coal), and some from molten material (copper, tin).
1. **Over 2000 minerals** have been identified, each with a definable internal structure, yet only a few are abundantly found in most rocks.

Source: Chapter 5 — Minerals and Energy Resources, "What is a Mineral?" and "Mode of Occurrence of Minerals"

Explanation

- The question asks you to **support a statement**, so structure your answer as clear points (5 points for 5 marks is ideal).
- Examiners look for: definition/variety, physical properties (colour, hardness, lustre, density), different rock types, different modes of formation, and the sheer number of minerals.
- Do not just list mineral names — link each point back to the idea of **distinct properties or forms**.
- Mentioning the range (diamond to talc) is a good opening hook directly from the textbook.

Q4. § ACTIVITY

[1]

Choose the correct option to fill in the blank :

[A fill-in-the-blank statement about minerals/resources — the blank refers to a category of minerals/resources]

- (A) Non-metallic
- (B) Metallic
- (C) Precious
- (D) Energy

Previously asked in: 2026 32/4/1 Q13

♦ Minerals and Energy Resources

Classification of minerals

Generated by claude-sonnet-4-6 • 2026-06-15 07:01 • grounding rag

The question as provided is incomplete — the actual fill-in-the-blank statement is missing, so I cannot identify which specific blank needs to be filled. However, based on the chapter 5 content provided and the options given, the most likely intended answer is:

Model Answer

(B) Metallic

Minerals like iron, copper, bauxite, gold, and tin are classified as **metallic** minerals, which are further divided into ferrous and non-ferrous types.

Source: Chapter 5 (Minerals and Energy Resources), Classification of Minerals

Explanation

- The chapter classifies minerals commercially into **metallic, non-metallic, and energy minerals**.
- "Metallic" is the most commonly tested category in fill-in-the-blank MCQs from this chapter.
- Without the exact blank statement, select **(B) Metallic** if the blank refers to minerals like iron/copper/gold; select **(D) Energy** if the blank refers to coal/petroleum; select **(A) Non-metallic** if it refers to mica/limestone/gypsum.
- In the board exam, re-read the full statement carefully before marking — the options narrow it down quickly.

Q5. § ACTIVITY

[1]

Choose the appropriate option to fill in the blank :

- (A) Energy Minerals
- (B) Non-Metallic Minerals
- (C) Non-Ferrous Minerals
- (D) Precious Minerals

Previously asked in: 2026 32/1/1 Q13

◆ Minerals and Energy Resources

Classification of Minerals: Ferrous, Non-Ferrous, Non-Metallic, and Energy Minerals

Generated by claude-sonnet-4-6 · 2026-06-15 07:00 · grounding rag

Model Answer**(C) Non-Ferrous Minerals**

Bauxite is a non-ferrous mineral (used to produce aluminium), so the blank middle box in the flowchart should read **Non-Ferrous Minerals**.

Source: Chapter 5 (Minerals and Energy Resources), Classification of Minerals

Explanation

The flowchart classifies minerals into three types: Ferrous (e.g., Nickel/Iron), **Non-Ferrous** (e.g., Bauxite/Aluminium), and Precious (e.g., Gold). Non-ferrous minerals do not contain iron. Bauxite is the ore of aluminium, making option (C) the only correct fit. Students often confuse non-ferrous with non-metallic — remember: non-ferrous minerals *are* metallic but lack iron content.

Q6. § What is a mineral? § MODE OF OCCURRENCE OF MINERALS § ACTIVITY

[1]

Two statements are given below. They are Assertion (A) and Reason (R). Read both the statements and choose the correct option.

Assertion (A): Certain minerals may occur as alluvial deposits in sands of valley floors and the base of hills.

Reason (R): These are usually minerals, that are not corroded by water.

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (B) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (C) (A) is true but (R) is false.
- (D) (A) is false but (R) is true.

Previously asked in: 2025 32/5/1 Q10

◆ Minerals and Energy Resources

Alluvial Deposits and Placer Deposits of Minerals

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer**(A) Both (A) and (R) are true and (R) is the correct explanation of (A).**

Placer deposits in sands of valley floors contain minerals not corroded by water, such as gold, silver, tin, and platinum, which correctly explains why they occur as alluvial deposits.

Source: *Minerals and Energy Resources, Mode of Occurrence of Minerals*

Explanation

The textbook explicitly states both facts together: certain minerals occur as alluvial/placer deposits **because** they are not corroded by water. Since R directly and correctly explains A, option (A) is the right choice. Students often confuse (A) and (B) — choose (B) only when both statements are true but R does **not** logically explain A.

Q7. § What is a mineral? § MODE OF OCCURRENCE OF MINERALS § CONSERVATION OF MINERALS

[2]

"The ocean waters contain vast quantities of minerals." Explain the statement with example.

Previously asked in: 2024 32/5/1 Q22(b)

♦ Minerals and Energy Resources

Minerals in Ocean Waters

Generated by claude-sonnet-4-6 • 2026-06-15 07:02 • grounding rag

Model Answer

Ocean waters contain vast quantities of minerals, but most are too widely diffused to be of economic significance. However, **common salt, magnesium, and bromine** are largely derived from ocean waters. The ocean beds are also rich in **manganese nodules**.

Source: Chapter 5, Mode of Occurrence of Minerals

Explanation

The question is directly lifted from point (v) of "Mode of Occurrence of Minerals." Examiners expect you to state the limitation (too diffused for economic use) AND give the specific examples (common salt, magnesium, bromine, manganese nodules). Missing the examples will cost you marks.

Q8. § What is a mineral? § MODE OF OCCURRENCE OF MINERALS

[2]

"Minerals occur in igneous and metamorphic rocks." Explain the statement with example.

Previously asked in: 2024 32/5/1 Q22(a)

♦ Minerals and Energy Resources

Occurrence of Minerals in Igneous and Metamorphic Rocks

Generated by claude-sonnet-4-6 • 2026-06-15 07:02 • grounding rag

Model Answer

In igneous and metamorphic rocks, minerals occur in **cracks, crevices, faults or joints**. Smaller occurrences are called **veins** and larger ones are called **lodes**. Minerals in liquid/molten and gaseous forms are forced upward through cavities, cool and solidify. Major metallic minerals like **tin, copper, zinc and lead** are obtained this way.

Source: Chapter 5, Mode of Occurrence of Minerals

Explanation

- Examiners expect two key terms: **veins** (smaller) and **lodes** (larger) — must mention both.
- State the **process**: molten/gaseous minerals forced upward → cool → solidify.
- Give **examples** (tin, copper, zinc, lead) — a common 1-mark component of this question.
- Do not confuse with sedimentary rock minerals (beds/layers) — that's a different point entirely.

Q9. § Ferrous Minerals

[4]

Iron Ore

Iron ore is the basic mineral and the backbone of industrial development. India is endowed with fairly abundant resources of iron ore. India is rich in good quality iron ores. Magnetite is the finest iron ore with a very high content of iron up to 70 per cent. It has excellent magnetic qualities, especially valuable in the electrical industry. Hematite ore is the most important industrial iron ore in terms of the quantity used, but has a slightly lower iron content than magnetite (50 – 60 per cent). In 2018 – 19, almost the entire production of iron ore (97%) accrued from Odisha, Chhattisgarh, Karnataka and Jharkhand. The remaining production (3%) was from other states.

Read the given source and answer the questions that follow:

35.1 In which iron ore is the maximum iron content found? [1]

35.2 Which is the most important industrial iron ore? [1]

35.3 "Iron ore is a basic mineral." Support the statement. [2]

Previously asked in: 2025 32/3/1 Q35

♦ Minerals and Energy Resources

Iron Ore as a Basic Mineral and Backbone of Industrial Development

Iron Ore – Types and Properties (Magnetite, Haematite)

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding stimulus

Model Answer

35.1 Magnetite is the iron ore with the maximum iron content — up to **70 per cent**.

35.2 Hematite is the most important industrial iron ore in terms of the quantity used.

35.3 Iron ore is called a basic mineral because it is the **backbone of industrial development**. Industries such as iron and steel depend entirely on it as a raw material. India is endowed with fairly abundant resources of good quality iron ores like magnetite and hematite. Without iron ore, large-scale industrial and infrastructural development would not be possible, making it fundamental to a nation's economic growth.

Source: Minerals and Energy Resources, Iron Ore

Explanation

- **35.1** is a direct one-line fact from the passage — just name the ore and state the percentage.
- **35.2** Again, a direct recall — "most important industrial iron ore" is explicitly stated for Hematite.
- **35.3** Examiners expect you to quote the passage's phrase "backbone of industrial development" and expand briefly with 2–3 supporting points (dependence of industries, India's resource richness, importance for infrastructure). Do not go beyond 4–5 sentences for a 2-mark answer.

Q10. § Non-Ferrous Minerals § Conventional Sources of Energy § Non-Conventional Sources of Energy**[1]**

Which one of the following is the highest 'bauxite' producing state of India ?

- (A) Maharashtra
- (B) Jharkhand
- (C) Gujarat
- (D) Odisha

Previously asked in: 2024 32/5/1 Q7

♦ Minerals and Energy Resources

Bauxite - Distribution and Leading Producing States in India

Generated by claude-sonnet-4-6 • 2026-06-15 07:02 • grounding rag

Model Answer

(D) Odisha

Odisha was the largest bauxite producing state in India in 2018–19, with a 65% share of total production.

Source: Non-Ferrous Minerals, Chapter 5

Explanation

The table in the textbook clearly shows Odisha has a 65% share in bauxite production — far ahead of Jharkhand (10%) and Gujarat (9%). For MCQs, always check the data tables in the chapter; examiners directly pick figures from them.

Q11. § CONSERVATION OF MINERALS**[1]**

Study the given table and answer the question that follows :

Read the following possible outcomes from the table and choose the correct option :

- I. If crude oil continues to be extracted at the present pace, it would be exhausted in about 50 years.
- II. In Middle Eastern Countries it may take longer than average of the world.
- III. To ensure the availability of crude oil in future, its reuse and recycle policy should be adopted.
- IV. In United States of America, Crude oil is likely to run out in just about 10 years.

- (A) Only I, III and IV are correct.
- (B) Only I, II and III are correct.
- (C) Only II, III and IV are correct.
- (D) Only I, II and IV are correct.

Previously asked in: 2025 32/5/1 Q5

♦ Minerals and Energy Resources

Exhaustion of Mineral and Energy Resources - Crude Oil Reserves

Generated by claude-sonnet-4-6 • 2026-06-15 07:03 • grounding rag

Model Answer

(D) Only I, II and IV are correct.

Statement III is incorrect because crude oil cannot be reused or recycled; conservation applies to metals, not fossil fuels.

Explanation

From the table: World Average reserves last ~50 years (I ✓), Middle East lasts 70 years > world average (II ✓), USA lasts ~10.5 years (IV ✓). Statement III is wrong because recycling/reuse applies to metals, not crude oil (a fossil fuel that is consumed on use). Examiners expect you to read the table carefully and apply subject knowledge to eliminate the incorrect statement.

Q12. § CONSERVATION OF MINERALS

[5]

"We have to use a planned and sustainable manner to conserve our minerals." Support the statement by giving suitable arguments.

Previously asked in: 2025 32/4/1 Q31(B)

◆ Minerals and Energy Resources

Conservation of Minerals

Sustainable Use of Mineral Resources

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer

Minerals must be conserved because they are **finite and non-renewable** resources. The following arguments support planned and sustainable use:

1. **Insignificant availability:** Workable mineral deposits form only about 1% of the earth's crust, making them extremely limited.
1. **Slow formation:** Geological processes that create minerals take millions of years, so rates of replenishment are infinitely small compared to current rates of consumption.
1. **Rising extraction costs:** Continued extraction leads to increasing costs as minerals must be obtained from greater depths, and ore quality also decreases.
1. **Valuable but short-lived:** Rich mineral deposits are extremely valuable but short-lived possessions that must be protected for future generations.
1. **Steps needed:** Improved technologies should be developed to use low-grade ores economically. Recycling of metals, using scrap metals, and finding substitutes are essential conservation measures.

Source: *Conservation of Minerals, Chapter 5*

Explanation

- The question asks you to **support a statement**, so frame each point as a reason/argument — examiners look for 5 distinct, substantive points for 5 marks.
- All arguments must come directly from the passage: finite nature, slow replenishment, rising costs, short-lived deposits, and conservation measures (technology, recycling, substitutes).
- Avoid copying sentences verbatim; paraphrase slightly to show understanding.
- The closing point on **conservation steps** (technology, recycling, substitutes) is important — it completes the argument by showing *how* to conserve, not just *why*.

Q13. § ACTIVITY**[1]**

Match Column I with Column II and choose the correct option :

Column I (Minerals) — Column II (Major Mines)

- a. Iron ore — i. Gaya
- b. Mica — ii. Singarauli
- c. Bauxite — iii. Chandrapur
- d. Coal — iv. Maikala

(A) a-iii, b-i, c-iv, d-ii

(B) a-iii, b-i, c-ii, d-iv

(C) a-ii, b-iii, c-i, d-iv

(D) a-ii, b-iii, c-iv, d-i

Previously asked in: 2025 32/1/1 Q11

♦ Minerals and Energy Resources

Matching minerals with their major mines/locations

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer

The correct answer is **(A) a-iii, b-i, c-iv, d-ii**

Iron ore → Chandrapur, Mica → Gaya, Bauxite → Maikala, Coal → Singarauli.

Explanation

- **Chandrapur** (Maharashtra) lies in the Durg-Bastar-Chandrapur iron ore belt mentioned in the chapter.
- **Gaya** (Bihar/Jharkhand region) is associated with mica deposits; Koderma-Gaya-Hazaribagh belt is a leading mica-producing area.
- **Maikala** range (Chhattisgarh) is known for bauxite deposits (residual weathering product).
- **Singarauli** (Madhya Pradesh) is a major coalfield.

Match these place–mineral pairs and pick option (A).

Q14. § Introduction § CONSERVATION OF MINERALS § ACTIVITY

[1]

Two statements are given below. They are Assertion (A) and Reason (R). Read both the statements carefully and choose the correct option :

Assertion (A) : Minerals are an indispensable part of our lives.

Reason (R) : All living things need minerals.

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (B) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- (C) (A) is true, but (R) is false.
- (D) (A) is false, but (R) is true.

Previously asked in: 2025 32/1/1 Q10

♦ Minerals and Energy Resources

Importance and Indispensability of Minerals

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer

(B) Both (A) and (R) are true, but (R) is not the correct explanation of (A).

Minerals are indispensable as everything from pins to ships is made from them. All living things do need minerals, but this alone does not explain why minerals are indispensable to *all* human life and industry.

Explanation

- (A) is true: the textbook states "Minerals are an indispensable part of our lives. Almost everything we use... are made from minerals."
- (R) is true: the textbook section "All living things need minerals" confirms this.
- However, (R) explains only the biological need for minerals, **not** the broader industrial, infrastructural, and everyday use that makes (A) true. So (R) is not the correct explanation of (A). Hence option **(B)**.

Q15. § Non-Conventional Sources of Energy**[3]**

Map based question. 13.1 (History, 1 mark): On the given outline Political Map of India, identify the place marked as 'A' and write its correct name on the line marked near it. 13.2 (Geography, 2 marks): On the same given Map of India, locate and label the following.

13.1 (A) On the given outline Political Map of India, identify the place marked as 'A' with the help of following information and write its correct name on the line marked near it: (A) The place where Indian National Congress Session was held in September, 1920. [1]

13.2 I On the same given Map of India, locate and label the following: (a) Ramagundam Thermal Plant [1]

13.2 II On the same given Map of India, locate and label: Chennai (Meenambakam) International Airport. [1]

Previously asked in: 2022 32/2/1 Q13

♦ Minerals and Energy Resources

Chennai (Meenambakam) International Airport – Map Location

Map Work – Locate and Label on Outline Map of India

Generated by claude-sonnet-4-6 • 2026-06-15 07:06 • grounding rag

Model Answer

13.1 (A): The place marked 'A' is **Calcutta (Kolkata)** — where the Indian National Congress Session was held in September 1920.

13.2 I: Ramagundam Thermal Power Plant — located in **Telangana** (Peddapalli district). To be marked with a dot and labelled on the map in south-central India.

13.2 II: Chennai (Meenambakam) International Airport — located in **Chennai, Tamil Nadu**, on the southeastern coast of India. To be marked with an airport symbol and labelled on the map.

Explanation

- **13.1:** The September 1920 INC Special Session was held in Calcutta (now Kolkata), where the Non-Cooperation Movement was formally launched by Gandhi. The point 'A' in the eastern part of the map confirms this.
- **13.2 I:** Ramagundam is a major thermal power station in Telangana. In map questions, locate it in the south-central Deccan region and write the name clearly.
- **13.2 II:** Chennai's international airport is at Meenambakam. Mark it on the southeastern coast (Tamil Nadu). In board exams, marking within the accepted boundary earns full marks — write both parts of the name to be safe.
- For map questions, **accuracy of location + legible labelling** are the two criteria examiners check.

Q16. § Energy Resources § Non-Conventional Sources of Energy

[5]

How are conventional sources of energy different from non-conventional sources ? Explain.

Previously asked in: 2024 32/1/1 Q31(B)

♦ Minerals and Energy Resources

Conventional vs Non-Conventional Sources of Energy

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer

Conventional Sources of Energy:

These are traditional energy sources that have been in use for a long time. They include firewood, cattle dung cake, coal, petroleum, natural gas, and electricity (both hydel and thermal). Most are non-renewable fossil fuels formed over millions of years. They are exhaustible and cause serious environmental pollution on burning.

Non-Conventional Sources of Energy:

These are renewable and environment-friendly alternatives. They include solar, wind, tidal, geothermal, biogas, and atomic energy. They are inexhaustible and cause little or no pollution.

Key Differences:

Basis	Conventional	Non-Conventional
Nature	Mostly non-renewable	Renewable
Pollution	Causes pollution	Eco-friendly
Availability	Exhaustible	Inexhaustible
Cost	Rising prices/shortages	Freely available

Rising prices of oil and gas, potential shortages, and environmental damage have made it urgent to shift to non-conventional sources like solar, wind, and biogas.

Source: *Resources and Development, Chapter 5 — Conventional and Non-Conventional Sources of Energy*

Explanation

- Examiners expect a **clear contrast** — either a table or parallel points for each type.
- Mention **examples** of both types (directly from the chapter).
- Include the **why shift** reason: exhaustibility, pollution, price rise — this completes a 5-mark answer.
- Avoid padding; keep language simple and factual.
- A table here saves words and earns full credit for the comparison aspect.

Q17. § Ferrous Minerals § Energy Resources § Non-Conventional Sources of Energy

[1]

Oil field located in Maharashtra

Previously asked in: 2025 32/5/1 Q37 37(b)(iv)

♦ Minerals and Energy Resources

Petroleum/Oil Fields in India - Maharashtra (Bombay High)

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer

The oil field located in Maharashtra is **Mumbai High** (also called Bombay High), situated off the coast in the Arabian Sea.

Explanation

Mumbai High (Bombay High) is the most important offshore oil field in India and the answer expected for Maharashtra on the map. It is located in the Arabian Sea, off the Mumbai coast. In map-skill questions, write the exact name clearly — examiners look for the correct location name. This is from the Minerals and Energy Resources chapter (Class 10 Geography).

Q18. § Energy Resources § Non-Conventional Sources of Energy § Conservation of Energy Resources

[2]

Differentiate between conventional and non-conventional sources of energy.

Previously asked in: 2026 32/3/1 Q14(b)

♦ Minerals and Energy Resources

Conventional vs Non-Conventional Sources of Energy

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer

| Conventional Sources | Non-Conventional Sources |

| --- | --- |

| Firewood, cattle dung cake, coal, petroleum, natural gas, hydel and thermal electricity | Solar, wind, tidal, geothermal, biogas and atomic energy |

| Non-renewable; limited in supply and cause environmental pollution | Mostly renewable; eco-friendly and inexhaustible |

Source: Energy Resources, Chapter 5

Explanation

- Examiners expect a **tabular or point-wise** distinction for "differentiate" questions — this avoids writing lengthy paragraphs and earns both marks quickly.
- One mark is for correctly listing examples of each type; the second mark is for stating the key difference (renewable vs. non-renewable / polluting vs. eco-friendly).
- Avoid simply listing examples without stating *how* they differ — that would lose the second mark.

Q19. § Conventional Sources of Energy**[1]**

Read the characteristics given in the box and identify the type of coal from the option given below :

- This is low grade brown coal.
- The principal reserves are in Neyveli in Tamilnadu.
- It is soft with high moisture content.

- A Pit Coal
- B Anthracite Coal
- C Lignite Coal
- D Bituminous Coal

Previously asked in: 2025 32/6/1 Q18

♦ Minerals and Energy Resources

Types of Coal – Lignite

Generated by claude-sonnet-4-6 • 2026-06-15 07:03 • grounding rag

Model Answer**Answer: C — Lignite Coal**

All three characteristics — low grade brown coal, soft with high moisture content, and principal reserves at Neyveli, Tamil Nadu — exactly describe Lignite Coal.

Source: Conventional Sources of Energy, chapter 5

Explanation

The passage directly states: "*Lignite is a low grade brown coal, which is soft with high moisture content. The principal lignite reserves are in Neyveli in Tamil Nadu.*" All three clues in the question match Lignite Coal word-for-word. In MCQs like this, eliminate wrong options: Anthracite is the *highest* quality hard coal; Bituminous is the most popular commercial coal; "Pit Coal" is not a standard NCERT term. Always map each clue to the passage.

Q20. § Conventional Sources of Energy**[1]**

Coal-mines located in Tamil Nadu

Previously asked in: 2025 32/5/1 Q37 37(b)(ii)

♦ Minerals and Energy Resources

Coal Mines in Tamil Nadu (Neyveli Lignite)

Generated by claude-sonnet-4-6 • 2026-06-15 07:03 • grounding rag

Model Answer

Neyveli is the coal mine (lignite) located in Tamil Nadu. It has principal lignite reserves and is used for generation of electricity.

Source: *Conventional Sources of Energy, Chapter 5*

Explanation

For map-skill questions, examiners expect you to correctly identify and name the specific location. Here, the key fact is that **Neyveli** in Tamil Nadu contains lignite (low-grade brown coal) reserves — not bituminous or anthracite. Write the name clearly on the map and, if space allows, add that it is a lignite/brown coal reserve. Do not confuse it with Gondwana coalfields (Jharia, Raniganj) which are in the Damodar Valley.

Q21. § Conventional Sources of Energy

[5]

Examine the role of coal as an important energy resource and describe its distribution in India.

Previously asked in: 2026 32/4/1 Q17(b)

♦ Minerals and Energy Resources

Coal as a conventional energy resource

Distribution of coal in India

Generated by claude-sonnet-4-6 · 2026-06-15 07:01 · grounding rag

Model Answer**Role of Coal as an Energy Resource:**

Coal is the most abundantly available fossil fuel in India. It is used for power generation, supplying energy to industries, and for domestic needs. India is highly dependent on coal for meeting its commercial energy requirements. Coal is a bulky material that loses weight on use (reduced to ash), so heavy industries and thermal power stations are located near coalfields.

Types of Coal: Peat → Lignite (low grade) → Bituminous (most popular commercially) → Anthracite (highest quality). Metallurgical coal (high-grade bituminous) is used in blast furnaces for smelting iron.

Distribution in India:

- **Gondwana coalfields** (~200 million years old): Found in **Damodar Valley** (West Bengal-Jharkhand) — Jharia, Raniganj, Bokaro. Also in Godavari, Mahanadi, Son and Wardha valleys.
- **Tertiary coalfields** (~55 million years old): Found in north-eastern states — Meghalaya, Assam, Arunachal Pradesh and Nagaland.
- **Lignite reserves:** Neyveli, Tamil Nadu (used for electricity generation).

Source: *Conventional Sources of Energy*, Chapter 5

Explanation

- The question has two parts: **role** and **distribution** — address both clearly.
- Examiners expect mention of **uses**, **types of coal** (at least 3–4), and **both Gondwana and Tertiary coalfields** with named states/fields.
- Neyveli lignite is a frequently asked specific fact — include it.
- The note about industries locating near coalfields is an important applied point from the textbook — don't skip it.

Q22. § Non-Conventional Sources of Energy

[1]

Match Column-I with Column-II and choose the correct option :

Column-I (Atomic Power Plants): a. Kakrapara b. Rawat Bhata c. Kaiga d. Tarapur

Column-II (State): i. Rajasthan ii. Karnataka iii. Maharashtra iv. Gujarat

(A) a-i b-ii c-iii d-iv

(B) a-ii b-iii c-iv d-i

(C) a-iv b-i c-ii d-iii

(D) a-iv b-i c-iii d-ii

Previously asked in: 2025 32/5/1 Q11

♦ Minerals and Energy Resources

Atomic/Nuclear Energy Resources and Power Plants in India

Generated by claude-sonnet-4-6 • 2026-06-15 07:03 • grounding rag

Model Answer

The correct answer is **(C) a-iv, b-i, c-ii, d-iii**

Kakrapara – Gujarat, Rawat Bhata – Rajasthan, Kaiga – Karnataka, Tarapur – Maharashtra.

Explanation

This is a standard map-based fact from the NCERT chapter on Minerals and Energy Resources. Students are expected to memorise the location of India's six nuclear power stations. The key pairs to remember: **Tarapur → Maharashtra, Rawat Bhata → Rajasthan, Kakrapara → Gujarat, Kaiga → Karnataka**. Option (C) is the only one that correctly matches all four.

Q23. § Non-Conventional Sources of Energy

[1]

Choose the correct option to fill in the blank.

The largest wind farm cluster in India is located between _____.

A Nagercoil to Madurai

B Jaipur to Jodhpur

C Bokaro to Raniganj

D Hazira to Jhabua

Previously asked in: 2026 32/2/1 Q12

♦ Minerals and Energy Resources

Wind Energy - Largest Wind Farm Cluster in India

Generated by claude-sonnet-4-6 • 2026-06-15 07:03 • grounding rag

Model Answer

A — Nagercoil to Madurai

The largest wind farm cluster in India is located in Tamil Nadu from **Nagercoil to Madurai**.

Explanation

The passage under "Wind power" explicitly states: *"The largest wind farm cluster is located in Tamil Nadu from Nagarcoil to Madurai."* Option A is correct. Note the slight spelling variation (Nagarcoil/Nagercoil) — both are accepted; use **Nagarcoil** (official spelling) in descriptive answers.

Q24. § Ferrous Minerals § Non-Conventional Sources of Energy

[1]

Choose the correct option for the following States' share (in percentage) in the production of 'manganese' in India from the highest to the lowest order.

- (A) Madhya Pradesh, Maharashtra, Karnataka, Odisha
- (B) Madhya Pradesh, Maharashtra, Odisha, Karnataka
- (C) Maharashtra, Madhya Pradesh, Karnataka, Odisha
- (D) Maharashtra, Odisha, Madhya Pradesh, Karnataka

Previously asked in: 2024 32/4/1 Q7

♦ Minerals and Energy Resources

Manganese - State-wise Production and Distribution in India

Generated by claude-sonnet-4-6 • 2026-06-15 07:02 • grounding rag

Model Answer

(D) Maharashtra, Odisha, Madhya Pradesh, Karnataka

Wait — checking the table: Madhya Pradesh = 33%, Maharashtra = 27%, Odisha = 16%, Karnataka = 12%.

(A) Madhya Pradesh, Maharashtra, Odisha, Karnataka

Explanation

The source table (Fig. 5.3) gives: Madhya Pradesh 33%, Maharashtra 27%, Odisha 16%, Karnataka 12%. Arrange from highest to lowest → MP, Maharashtra, Odisha, Karnataka. Option **(A)** is correct. Students often confuse Maharashtra and Odisha ranks — always check the exact percentages from the pie/table data.

Q25. § Non-Conventional Sources of Energy

[1]

Match Column I with Column II and choose the correct option :

Column I (Thermal Power Plant): a. Talcher, b. Ramagundam, c. Bhusawal, d. Vijayawada

Column II (State): i. Telangana, ii. Odisha, iii. Andhra Pradesh, iv. Maharashtra

- A a-ii, b-i, c-iv, d-iii
- B a-iii, b-iv, c-i, d-ii
- C a-iv, b-iii, c-ii, d-i
- D a-ii, b-i, c-iii, d-iv

Previously asked in: 2025 32/2/1 Q11

♦ Minerals and Energy Resources

Thermal Power Plants in India - Location by State

Generated by claude-sonnet-4-6 • 2026-06-15 07:02 • grounding rag

Model Answer

The correct answer is **A: a-ii, b-i, c-iv, d-iii**

Talcher – Odisha (ii), Ramagundam – Telangana (i), Bhusawal – Maharashtra (iv), Vijayawada – Andhra Pradesh (iii).

Explanation

These are standard thermal power plant locations from the NCERT map of India (Chapter 5 – Energy Resources). Students must memorise the state-wise locations of major thermal power plants shown in the textbook map. Ramagundam is in Telangana (formerly Andhra Pradesh), Talcher in Odisha, Bhusawal in Maharashtra, and Vijayawada in Andhra Pradesh.

Q26. § Non-Conventional Sources of Energy**[1]**

Two statements are given below. They are Assertion (A) and Reason (R). Read both the statements and choose the correct option :

Assertion (A) : India has enormous possibilities of production of solar energy.

Reason (R) : Most of the land area of India falls under the cold zone.

A Both (A) and (R) are true and (R) is the correct explanation of (A).

B Both (A) and (R) are true, but (R) is not the correct explanation of (A).

C (A) is true, but (R) is false.

D (A) is false, but (R) is true.

Previously asked in: 2025 32/2/1 Q10

♦ Minerals and Energy Resources

Assertion-Reason: Solar Energy and India's Climatic Zone

Solar Energy

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer**Option C: (A) is true, but (R) is false.**

Assertion is correct — India is a tropical country with enormous solar energy potential. But the Reason is false — most of India falls under the **tropical zone**, not the cold zone.

Explanation

The textbook states: "*India is a tropical country. It has enormous possibilities of tapping solar energy.*" So (A) is correctly stated. However, (R) says India falls under the "cold zone," which directly contradicts the fact that India is a tropical country receiving abundant sunlight. Since (R) is factually wrong, option **C** is correct. In Assertion-Reason questions, always check the factual accuracy of both statements separately before checking if R explains A.

Q27. § Energy Resources § Non-Conventional Sources of Energy § Conservation of Energy Resources

[5]

Examine the role of petroleum as an important source of energy and describe its distribution in India.

Previously asked in: 2026 32/4/1 Q17(a)

♦ Minerals and Energy Resources

Distribution of petroleum in India

Petroleum as a source of energy

Generated by claude-sonnet-4-6 · 2026-06-15 07:01 · grounding rag

Model Answer

Role of Petroleum as an Energy Source:

Petroleum or mineral oil is the next major energy source in India after coal. It provides fuel for heat and lighting, lubricants for machinery, and raw materials for manufacturing industries. Petroleum refineries act as a **"nodal industry"** for synthetic textiles, fertilisers and numerous chemical industries, making it vital for industrial development.

Occurrence: Most petroleum in India is associated with anticlines and fault traps in tertiary rock formations. Oil is trapped in porous limestone or sandstone layers between non-porous rocks.

Distribution in India:

- **Mumbai High** – largest offshore producer
- **Gujarat** – Ankeleshwar is the most important oilfield
- **Assam** – oldest oil-producing state; key fields are **Digboi**, **Naharkatiya** and **Moran-Hugrijan**

These three regions – Mumbai High, Gujarat and Assam – are the major petroleum production areas in India.

Source: *Conventional Sources of Energy*, Chapter 5

Explanation

- **5 marks** → ~5 points: Examiners expect role/importance (2 points) + geological occurrence (1 point) + distribution with named fields (2–3 points).
- Always name **all three major regions** and specific oilfields (Digboi, Ankeleshwar, etc.) – these fetch direct marks.
- The phrase **"nodal industry"** is from the textbook – use it exactly; it shows precise knowledge.
- Avoid mixing up petroleum with natural gas details unless asked.

Q28. § Conservation of Energy Resources

[4]

CONSERVATION OF ENERGY RESOURCES

Energy is a basic requirement for economic development. Every sector of the national economy – agriculture, industry, transport, commercial and domestic – needs inputs of energy. The economic development plans implemented since independence necessarily required increasing amounts of energy to remain operational. As a result, consumption of energy in all forms has been steadily rising all over the country. In this background, there is an urgent need to develop a sustainable path of energy development. Promotion of energy conservation and increased use of renewable energy sources are the twin planks of sustainable energy. India is presently one of the least energy efficient countries in the world. We have to adopt a cautious approach for the judicious use of our limited energy resources. For example, as concerned citizens we can do our bit by using public transport systems instead of individual vehicles; switching off electricity when not in use, using power-saving devices and using non-conventional sources of energy. At last "Energy Saved is energy produced"

Read the given case and answer the questions that follow :

(35.1) Why is sustainable energy a key to sustainable development ? [1]

(35.2) Why is consumption of energy rising in all over India? [1]

(35.3) Explain 'Energy saved is energy produced'. [2]

Previously asked in: 2023 32/1/1 Q35

♦ Minerals and Energy Resources

Conservation of energy resources

Rising Energy Consumption in India

Sustainable Energy and Sustainable Development

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding stimulus

Model Answer

(35.1) Sustainable energy — through energy conservation and increased use of renewable sources — ensures continuous energy supply without depleting resources, which is essential for long-term economic development and hence sustainable development.

(35.2) Since independence, economic development plans in all sectors — agriculture, industry, transport, commercial and domestic — have required increasing amounts of energy to remain operational, causing energy consumption to rise steadily across India.

(35.3) Every unit of energy we save reduces the demand on existing limited energy resources, making that saved energy equivalent to producing new energy. By using public transport, switching off unused lights, using power-saving devices and non-conventional energy sources, we conserve energy — effectively "producing" it without any additional generation.

Source: *Contemporary India II, Chapter 5 – Minerals and Energy Resources*

Explanation

- **(35.1)** Link energy conservation + renewables directly to long-term development — that's the examiner's key phrase from the passage ("twin planks of sustainable energy").
- **(35.2)** The reason is explicitly stated in the passage: economic development plans across all sectors needed increasing energy inputs. Mention sectors for full marks.
- **(35.3)** This is a 2-mark explanation — give the concept (saved energy = new energy produced) AND support with at least two examples from the passage (public transport, power-saving devices, etc.). Don't just quote the slogan; explain it.

Q29. § Conservation of Energy Resources

[5]

How is energy a basic requirement for economic development ? Explain.

Previously asked in: 2024 32/1/1 Q31(A)

♦ Minerals and Energy Resources

Energy as a Basic Requirement for Economic Development

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer

Energy is a basic requirement for economic development for the following reasons:

1. **All sectors depend on energy:** Agriculture, industry, transport, commercial and domestic sectors all need energy inputs to function and remain operational.
1. **Essential for daily activities:** Energy is needed to cook food, provide light and heat, propel vehicles and drive machinery in industries.
1. **Rising demand:** Since Independence, economic development plans have required increasing amounts of energy, leading to steadily rising consumption across the country.
1. **Fossil fuel dependence and its risks:** Growing consumption has made India increasingly dependent on coal, oil and gas. Rising prices and potential shortages threaten the security of energy supply, which has serious repercussions on national economic growth.
1. **Need for sustainable energy:** Since resources are limited, promoting energy conservation and use of renewable sources is essential to sustain economic development.

Source: Resources and Development, Chapter 5 — Energy Resources; Conservation of Energy Resources

Explanation

- Examiners expect **5 distinct points** for a 5-mark answer — one point per mark is the safest approach.
- Always mention **all sectors** (agriculture, industry, transport, commercial, domestic) as the textbook lists them explicitly.
- Link energy shortages to **economic consequences** — this shows application of the concept.
- The phrase "*energy saved is energy produced*" can be used as a concluding line to impress examiners.
- Avoid copying long textbook paragraphs; paraphrase into crisp points.

Q30. § Conservation of Energy Resources

[2]

Why is the conservation of conventional sources of energy significant ? Explain any two reasons.

Previously asked in: 2025 32/6/1 Q23

♦ Minerals and Energy Resources

Conservation of Conventional Sources of Energy

Non-renewable / Conventional Energy Resources

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer

Conservation of conventional energy sources is significant because:

1. **Limited and non-renewable:** Conventional sources like coal, petroleum and natural gas take millions of years to form. Their reserves are finite and getting depleted rapidly due to increasing consumption.
1. **Economic and environmental concerns:** Rising prices and potential shortages of fossil fuels create uncertainty in energy supply, threatening economic growth. Their excessive use also causes serious environmental pollution.

Source: Energy Resources & Non-Conventional Sources of Energy, Chapter 5

Explanation

- The question asks for **two reasons**, so give exactly two, clearly labelled.
- Key terms to include: *non-renewable*, *finite reserves*, *economic security*, *environmental problems* — examiners look for these specific ideas from the textbook.
- Avoid writing a long paragraph; two crisp points score full marks in 2-mark questions.

Q31. § Conservation of Energy Resources

[5]

"It would be beneficial to develop sustainable way to meet the growing energy demand in India." Support the statement by giving suitable arguments.

Previously asked in: 2025 32/4/1 Q31(A)

♦ Minerals and Energy Resources

Conservation of energy resources

Non-Conventional / Renewable Sources of Energy

Sustainable Energy Development in India

Generated by claude-sonnet-4-6 • 2026-06-15 07:03 • grounding rag

Model Answer

India's growing energy demand must be met through sustainable means for the following reasons:

1. **Depleting fossil fuels:** India is heavily dependent on coal, petroleum and natural gas, which are non-renewable and being exhausted rapidly. Rising prices and potential shortages threaten energy security.
1. **Environmental damage:** Increasing use of fossil fuels causes serious environmental pollution, making a shift to cleaner sources essential.
1. **Abundance of renewables:** India is blessed with abundant sunlight, wind, water and biomass. Solar, wind, tidal, biogas and geothermal energy can meet demands without depletion.
1. **Energy conservation:** India is one of the least energy-efficient countries. Using public transport, switching off electricity when not in use, and using power-saving devices can reduce wastage — *"energy saved is energy produced."*
1. **Rural benefit:** Renewable sources like solar and biogas reduce dependence on firewood and dung cakes, conserving forests and improving agricultural manure supply.

Source: Chapter 5 — Energy Resources; Conservation of Energy Resources; Non-Conventional Sources of Energy

Explanation

- Examiners expect **5 distinct points** for a 5-mark answer — each point earns 1 mark.
- Always link **why fossil fuels are unsustainable** (depletion + pollution) before arguing for renewables.
- Quoting the textbook line *"energy saved is energy produced"* is a value-addition examiner will notice.
- Keep each point crisp — one sentence or two at most. Avoid writing a long essay.

Q32. § Energy Resources § Conservation of Energy Resources

[2]

Why is there a pressing need to use non-conventional energy resources ? Explain.

Previously asked in: 2023 32/5/1 Q23(b)

♦ Minerals and Energy Resources

Need for Non-Conventional Energy Resources

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer

There is a pressing need to use non-conventional energy sources because:

1. **Depleting fossil fuels:** Growing consumption has made the country increasingly dependent on coal, oil and gas, which are non-renewable and facing potential shortages.
2. **Rising prices and energy insecurity:** Rising prices of oil and gas create uncertainties about future energy supply, affecting national economic growth.
3. **Environmental problems:** Increasing use of fossil fuels causes serious environmental pollution.

Therefore, renewable sources like solar, wind, tidal and biomass energy must be promoted.

Source: *Conservation of Energy Resources / Non-Conventional Sources of Energy, Chapter 5*

Explanation

Examiners expect **two or three distinct reasons** for this 2-mark question. The key points are: (1) fossil fuels are finite and depleting, (2) rising prices/energy insecurity, and (3) environmental damage. You don't need all three — any two well-stated points earn full marks. Avoid writing a lengthy essay; crisp, numbered points work best here.

Q33. § Energy Resources § Non-Conventional Sources of Energy § Conservation of Energy Resources

[3]

Energy is essential for all activities. Explain this statement with examples.

Previously asked in: 2023 32/2/1 Q26

♦ Minerals and Energy Resources

Importance of Energy Resources

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer

Energy is required for all activities in every sector of life. Some examples are:

- **Cooking and household use:** Energy is needed to cook food and provide light and heat in homes.
- **Transport:** Energy propels vehicles like buses, trains and aeroplanes.
- **Industries:** Energy drives machinery in factories and industries.
- **Agriculture and economy:** Every sector — agriculture, industry, transport and commercial — needs energy inputs for development.

Thus, without energy, no activity — whether domestic, industrial or national — can be carried out.

Source: *Energy Resources, Chapter 5*

Explanation

- The examiner expects **3 distinct points with examples**, each worth ~1 mark.
- The core statement from the textbook is: "*Energy is required for all activities — to cook, provide light and heat, propel vehicles, and drive machinery.*" Build your answer around this.
- Avoid generic statements; link each point to a **specific sector or example** from the passage.
- Do not write lengthy paragraphs — short, labelled points score better in a 3-mark answer.

Q34. § Conservation of Energy Resources

[2]

How is energy a basic requirement for economic development of a country? Explain with examples.

Previously asked in: 2024 32/4/1 Q22

♦ Minerals and Energy Resources

Energy as a Basic Requirement for Economic Development

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer

Energy is a basic requirement for economic development because every sector of the national economy — **agriculture, industry, transport, commercial and domestic** — needs energy inputs to function.

Examples:

- Agriculture needs energy for irrigation pumps and machinery.
- Industries use energy to drive machinery and manufacturing processes.
- Transport sector requires fuel to propel vehicles.

Without adequate energy, no development plan can remain operational.

Source: *Conservation of Energy Resources, Chapter 5*

Explanation

The examiner expects you to state the direct link between energy and economic development, then back it with **sector-wise examples** (at least 2–3). The textbook explicitly lists the five sectors: agriculture, industry, transport, commercial, and domestic — mentioning these earns full marks. Keep examples crisp; do not elaborate into conservation or non-conventional sources unless asked.

Q35. § Energy Resources § Conservation of Energy Resources

[5]

"Energy is required for all kinds of activities." Explain this statement with examples.

Previously asked in: 2024 32/2/1 Q31(b)

♦ Minerals and Energy Resources

Importance of Energy Resources and Their Uses

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer

Energy is required for all kinds of activities in daily life, industry, agriculture, transport and commerce.

Examples:

1. **Cooking and heating:** Energy in the form of firewood, LPG or biogas is needed to cook food and provide heat in homes.
1. **Lighting:** Electricity is required to provide light in homes, offices and streets.
1. **Transport:** Energy derived from petroleum is used to propel vehicles like buses, cars and trains.
1. **Industries:** Machinery in industries is driven by energy from coal, electricity or natural gas.
1. **Agriculture:** Energy is needed to run irrigation pumps, tractors and other farm equipment.

Energy is generated from conventional sources (coal, petroleum, natural gas) and non-conventional sources (solar, wind, biogas). As consumption rises steadily, judicious use of energy resources is essential.

Source: *Energy Resources, Chapter 5*

Explanation

- The examiner expects **at least 4–5 distinct examples** with brief explanation for each — this question is directly from the textbook definition plus supporting details.
- Mention **both conventional and non-conventional** sources briefly to show complete understanding.
- Avoid writing a long essay; use a short intro + point-wise examples + one concluding line — this fits the 5-mark word budget neatly.
- The exact phrase "cook, provide light and heat, propel vehicles, drive machinery" comes directly from the textbook — use it as your base and expand slightly.

Q36. § Conservation of Energy Resources

[5]

"Promotion of energy conservation is important plank of sustainable energy." Explain the statement with examples.

Previously asked in: 2024 32/2/1 Q31(a)

♦ Minerals and Energy Resources

Energy Conservation and Sustainable Development

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer

Energy is a basic requirement for economic development, and with rising consumption across all sectors, sustainable energy development has become urgent. Promotion of energy conservation is a key plank of sustainable energy because India is one of the least energy efficient countries in the world, and our limited energy resources must be used judiciously.

Examples of energy conservation:

1. **Public transport** – Using buses/trains instead of individual vehicles reduces fuel consumption.
2. **Switching off electricity** when not in use prevents wasteful consumption.
3. **Power-saving devices** – Using energy-efficient appliances reduces overall demand.
4. **Non-conventional sources** – Solar, wind, biogas and tidal energy reduce dependence on fossil fuels.
5. **Biogas plants** – Use cattle dung efficiently, replacing firewood and dung cakes, thus conserving forests and improving manure quality.

As the saying goes, "*Energy saved is energy produced.*"

Source: Conservation of Energy Resources, Chapter 5

Explanation

- The question directly tests the textbook paragraph on sustainable energy — quote or closely paraphrase it.
- Examiners expect the definition/context (why conservation is needed) + at least 3–4 concrete examples from the text.
- The phrase "energy saved is energy produced" is a textbook quote — always include it for full marks.
- Do not write lengthy paragraphs; crisp numbered points with a brief explanation score best in 5-mark answers.

Q37. § Conservation of Energy Resources

[5]

"Conserving energy is essential for sustainable development." Support the statement with suitable arguments.

Previously asked in: 2026 32/5/1 Q17(a)

♦ Minerals and Energy Resources

Conservation of Energy Resources and Sustainable Development

Types of Energy Resources – Conventional and Non-Conventional

Generated by claude-sonnet-4-6 • 2026-06-15 07:02 • grounding rag

Model Answer

Energy conservation is essential for sustainable development because of the following reasons:

1. **Limited fossil fuels:** Coal, petroleum and natural gas take millions of years to form and are non-renewable. Their rapid consumption threatens future energy security.
1. **Environmental protection:** Increasing use of fossil fuels causes serious environmental problems like pollution and climate change. Conservation reduces this damage.
1. **Economic stability:** Rising prices of oil and gas and potential shortages create uncertainties that have serious repercussions on the national economy.
1. **Promotes renewables:** Conserving conventional energy encourages greater use of renewable sources — solar, wind, biogas, tidal — ensuring long-term supply.
1. **Individual responsibility:** Using public transport, switching off unused lights, using power-saving devices all reduce consumption significantly.

As the textbook rightly states, "**energy saved is energy produced**" — conservation and renewable energy are the twin planks of sustainable energy development.

Source: Chapter 5, Conservation of Energy Resources & Non-Conventional Sources of Energy

Explanation

Examiners expect 5 distinct, well-labelled points for a 5-mark question. The key arguments are: non-renewable nature of fossil fuels, environmental harm, economic impact, promotion of renewables, and individual action. Always quote the textbook line "**energy saved is energy produced**" — it directly supports the statement and shows textbook grounding. Avoid writing a lengthy essay; crisp points with one-line elaboration are ideal.

Q38. § Conservation of Energy Resources**[5]**

"Electricity has a wide range of applications in today's world that its per capita consumption is considered as an index of development." Justify the statement with suitable arguments.

Previously asked in: 2026 32/1/1 Q17 (B)

♦ Minerals and Energy Resources

Importance of electricity / per capita energy consumption as an index of development

Generated by claude-sonnet-4-6 · 2026-06-15 07:01 · grounding rag

Model Answer

Electricity is considered an index of development because of the following reasons:

1. **All sectors depend on it:** Agriculture, industry, transport, commercial and domestic sectors all require energy inputs. Without electricity, economic development cannot be sustained.
1. **Drives industrial growth:** Iron ore, steel and other industries need continuous electricity supply. More developed nations consume more electricity per person.
1. **Fuels modern technology:** Photovoltaic systems, wind farms, and nuclear plants all ultimately generate electricity, reflecting a nation's technological advancement.
1. **Rising demand:** As India's economic development plans have expanded since Independence, energy consumption has steadily risen, making per capita electricity use a direct measure of progress.
1. **Quality of life:** Electricity powers domestic needs — lighting, cooking, heating — so higher per capita use reflects better living standards.

Hence, a nation's per capita electricity consumption directly mirrors its economic and social development level.

Source: *Energy Resources and Conservation of Energy Resources, Chapter 5*

Explanation

- The examiner expects you to link electricity/energy consumption to **economic development** across multiple sectors.
- Mention at least **4-5 distinct points** for a 5-mark question.
- You can mention specific examples (agriculture, industry, domestic use) to show breadth.
- Avoid simply listing sectors — briefly explain *why* each point justifies the statement.
- Do not write an essay; keep each point to 1-2 lines.

Q39. § Conservation of Energy Resources**[5]**

"Energy saved is energy produced." Justify the statement with suitable arguments.

Previously asked in: 2026 32/1/1 Q17 (A)

♦ Minerals and Energy Resources

Conservation of energy resources

Generated by claude-sonnet-4-6 • 2026-06-15 07:01 • grounding rag

Model Answer

"Energy saved is energy produced" means that conserving energy is as valuable as generating new energy. The following arguments justify this:

1. **Rising Demand:** Every sector — agriculture, industry, transport, domestic — needs increasing energy. Saving energy directly reduces this burden on supply.
1. **Limited Fossil Fuels:** India depends heavily on coal, oil and gas, which are finite and non-renewable. Saving energy extends their availability and reduces import dependency.
1. **Environmental Protection:** Reduced consumption of fossil fuels lowers pollution, acid rain and greenhouse gas emissions.
1. **Cost-effective:** Generating new energy requires huge investment. Conservation through simple habits — using public transport, switching off lights, using power-saving devices — costs far less.
1. **Energy Security:** Saved energy reduces uncertainties of future supply, ensuring stable economic growth.

Thus, every unit of energy saved adds directly to the available supply, making conservation equivalent to production.

Source: *Conservation of Energy Resources, Chapter 5*

Explanation

- The statement is directly quoted in the textbook passage — always link your answer back to it.
- Examiners expect **5 distinct points** for a 5-mark answer; each point should be concise (1–2 lines).
- Key themes to cover: rising demand, finite fossil fuels, environment, cost, energy security.
- Avoid writing long paragraphs — crisp numbered points score better in board exams.

Q40. § What is a mineral? § ACTIVITY

[2]

Differentiate between ferrous and non-ferrous minerals.

Previously asked in: 2026 32/3/1 Q14(a)

♦ Minerals and Energy Resources

Ferrous and Non-Ferrous Minerals

Generated by claude-sonnet-4-6 · 2026-06-15 07:03 · grounding rag

Model Answer

Ferrous minerals contain iron as a major constituent, e.g., iron ore, manganese, nickel, cobalt. They provide a strong base for metallurgical industries.

Non-ferrous minerals do not contain iron but include other valuable metals such as copper, bauxite, gold, and silver. Rajasthan has significant reserves of non-ferrous minerals.

Explanation

The question asks for a distinction, so write one point about each type. Examiners expect: definition/key property + example for each. The passage directly defines ferrous minerals and mentions non-ferrous minerals in the context of Rajasthan's reserves. Stick to this; avoid over-elaborating. Two clear contrasting sentences with examples earn full marks.

Q41. § ACTIVITY

[1]

Which one of the following is an example of the Ferrous Metal ?

- (a) Copper
- (b) Tin
- (c) Bauxite
- (d) Nickel

Previously asked in: 2023 32/4/1 Q5

♦ Minerals and Energy Resources

Ferrous Minerals

Generated by claude-sonnet-4-6 · 2026-06-15 07:02 · grounding rag

Model Answer**(d) Nickel**

Nickel is a ferrous mineral. Copper and tin are non-ferrous metals, and bauxite is an ore of aluminium (also non-ferrous).

Source: Chapter 5, Ferrous Minerals & Non-Ferrous Minerals sections.

Explanation

The textbook classifies ferrous minerals as those containing iron or used in iron/steel production (iron ore, manganese, nickel). Copper, tin, and bauxite are explicitly listed or implied as **non-ferrous**. Examiners expect students to recall this classification directly. Note: bauxite is an ore (not a metal), and copper is clearly non-ferrous per the chapter.

Q42. § ACTIVITY

[1]

Choose the appropriate option to fill in the blank :

[The blank relates to a classification of minerals — the correct answer fills the blank in a statement about minerals that include iron ore, manganese, chromite etc.]

- A Non-Ferrous minerals
- B Igneous minerals
- C Energy minerals
- D Ferrous minerals

Previously asked in: 2026 32/5/1 Q13

♦ Minerals and Energy Resources

Classification of Minerals: Ferrous Minerals (iron ore, manganese, chromite)

Generated by claude-sonnet-4-6 • 2026-06-15 07:01 • grounding rag**Model Answer****D — Ferrous minerals**

Ferrous minerals include iron ore, manganese, and chromite. They contain iron and account for about three-fourths of the total value of production of metallic minerals in India.

Explanation

The question tests knowledge of mineral classification. "Ferrous" means iron-containing; ferrous minerals are those that contain iron (like iron ore) or are smelted using iron/steel as a base (like manganese, chromite, nickel, cobalt). Non-ferrous minerals like copper, bauxite, and gold do not contain iron. Examiners expect the direct option **D** plus a brief supporting definition to show understanding.

Q43. § ACTIVITY

[1]

Match Column-I with Column-II and choose the correct option :

- (a) A-(i), B-(iii), C-(iv), D-(ii)
- (b) A-(ii), B-(i), C-(iii), D-(iv)
- (c) A-(iv), B-(ii), C-(i), D-(iii)
- (d) A-(iii), B-(iv), C-(ii), D-(i)

Previously asked in: 2025 32/4/1 Q7

♦ Minerals and Energy Resources

Ferrous and Non-Ferrous Minerals

Matching minerals with their major mines/locations

Properties and Occurrence of Minerals

Generated by claude-sonnet-4-6 • 2026-06-15 07:04 • grounding rag**Model Answer****(d) A-(iii), B-(iv), C-(ii), D-(i)**

Copper is used in electric cables and utensils; Bauxite is used in aluminium production; Mica is used in electric and electronic industries; Manganese is used in manufacturing of steel and paints.

Explanation

Remember the specific uses: **Copper** — good conductor, so cables/utensils; **Bauxite** — ore of aluminium; **Mica** — heat/electricity resistant, used in electronics; **Manganese** — alloying agent for steel and also used in paints. These are standard facts from the Mineral Resources chapter (Ch. 5, Contemporary India II).

Available for free from:
<https://cbsegrade10studyguide.com>
<https://github.com/orgs/cbse-free-resources/repositories>