Affiliated to CBSE, New Delhi (Affiliation No. 1030642)

GNPS

GOMTI NANDAN PUBLIC SCHOOL

Gandhi Ward, Bina (M.P.) 470113. | 9165 609 333. | info@mygnps.com | www.mygnps.com

CLASS X · SOCIAL SCIENCE (087) · GEOGRAPHY · CBSE BOARD EXAMINATION 2027

GEOGRAPHY · CHAPTER 5 MODEL ANSWERS

Minerals and Energy Resources

Board-Style Answer Booklet · Answers as CBSE expects them

CBSE marking-scheme pattern | Word count on every answer | 75 model answers | Most-probable 2027 answers marked

INSIDE THIS BOOKLET

M	**How CBSE Marks Geography** Section layout, the seven marking rules, answer frames	2
A	**Textbook Check – Answers** 22 model answers	3
B	**Objective – Answer Key** 20 answers, each with a reason	7
C	**Board Pattern – Answers** 11 model answers	8
D	**Case-Based – Answers** 5 cases, 15 answers	10
E	**Map Work – Key** 7 places located	12

HOW TO USE IT

1. Write your own answer first, in the practice notebook.
2. Then open this booklet. Tick each numbered point you also wrote.
3. Give yourself 1 mark per matching point – that is how the examiner marks.
4. Copy any point you missed into My Mistakes (last page of the Chapter Booklet).
5. Rewrite the answer after 3 days, from memory.

USE WITH Chapter Booklet, Geography Ch 5

M

READ THIS FIRST · BASED ON THE CBSE SAMPLE PAPER AND MARKING SCHEME 2026–27

How CBSE Marks Geography

Every answer in this booklet follows the official marking-scheme pattern: numbered value points, keyword first, inside the word limit. Under each answer you will see its word count and how the marks are split.

The Geography section of the 2027 paper

Section B · 20 marks

Item	Type	Marks	Words	What earns the marks
Q10–Q15	MCQs: statements, matching, assertion–reason, identify from clues	1 each	–	Letter + answer
Q16	Very short answer	2	40	2 points × 1 mark
Q17	Long answer, (A) **or** (B)	5	120	5 points × 1 mark
Q18	Source / case-based: 18.1, 18.2, 18.3	1+1+2	100 in all	From the passage + chapter facts
Q19	Map: locate and label any three of four items	3	–	Right place + name written

In both 2026 papers we read, this chapter gave **Q13** (type of a mineral) and **both choices of Q17** (5 marks: energy conservation, electricity, modes of occurrence). Write 5 points of one line each, with an example in each.

How the marking scheme gives marks

SEVEN RULES

- **Marks come from value points.** Each correct, relevant point earns 1 mark: 2 marks = 2 points, 3 marks = 3 points, 5 marks = 5 points. The scheme accepts "any other relevant point", so a correct NCERT point that is not in our answer also scores.
- **Points are numbered and short.** Official answers have no introduction or conclusion. Our 5-mark answers sometimes add one opening and one closing line only so the answer reads well – skip them when short of time.
- **Keyword first.** Start each point with the key word and underline it – the examiner scans for it. Then give one fact: a name, a date, a number or an example.
- **MCQs:** write the letter and the answer text. Combination questions are answered like "(b) Only a, b and d".
- **Case / source-based:** (i) and (ii) need one clear line each; the 2-mark part needs two separate points. Use the passage's own clues, then add chapter facts.
- **Internal choice:** write "(A)" or "(B)" in the margin and attempt only one.
- **Do not repeat** one idea in two points – it earns one mark only.

Answer frames – copy this shape

2-mark answer ≤ 40 words

1. Keyword: one reason or fact.
2. Keyword: a second, different reason or fact.

Two lines, no introduction.

3-mark answer ≤ 60 words

1. Keyword: point + name / date / number.
2. Keyword: point + example.
3. Keyword: point + result.

One sentence per point.

5-mark answer ≤ 120 words

→ Optional opening line that answers the question in short.

1–5 Five numbered points, keyword first, a fact in each.

→ Optional closing line: "So / Hence …".

Order the points in time, or from cause to result.

Case-based 1 + 1 + 2 · ≤ 100 words

(i) One line, from the passage.

(ii) One line: passage clue + chapter fact.

(iii) Two separate points, one line each.

Never copy the whole passage.

Short of time? Learn these ten first

Most probable for 2027

C1	"Energy saved is energy produced." Explain with five …	[5]	C2	How is energy conservation linked to sustainable development?	[5]
C3	Why is there a pressing need to use non-conventional …	[3]	C6	Describe the modes of occurrence of minerals with examples.	[5]
C7	Distinguish between ferrous and non-ferrous minerals with …	[3]	C8	Describe the distribution of iron ore in India.	[5]
C10	Suggest any three measures to conserve mineral resources.	[3]	C11	Describe any five non-conventional sources of energy in India.	[5]
D1	Case: Gold in the Riverbed	[4]	D2	Case: Red Earth to Japan	[4]

A

ANSWERS · PART A

Textbook Check – Answers

Model answers to every Textbook Check question. Underlined words are the keywords the examiner looks for.

Minerals

A1. What is a mineral? Why are minerals called indispensable? [2]

1. **Meaning:** a homogeneous, naturally occurring substance with a definable internal structure.
2. **Indispensable:** everything from a pin to buildings, vehicles and even our food uses minerals.

25 words · limit 40 | Marking: 2 points × 1 = 2 | A–R on this: 2025 32/1/1 Q10. | MUST DO

A2. How do minerals occur in igneous and in sedimentary rocks? [3]

1. **Igneous and metamorphic:** in cracks, faults and joints as veins and lodes – tin, copper, zinc, lead.
2. **How:** molten or gaseous matter is forced up through cavities and cools.
3. **Sedimentary:** in beds or layers – coal, some iron ore; gypsum and salt by evaporation.

42 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

A3. Classify minerals into three groups with two examples each. [3]

1. **Metallic:** ferrous – iron ore, manganese; non-ferrous – copper, bauxite; precious – gold, silver.
2. **Non-metallic:** mica, limestone, salt, sulphur.
3. **Energy:** coal, petroleum, natural gas.

21 words · limit 60 | Marking: 3 points × 1 = 3 | Type of a mineral: 2026 32/1/1 Q13, 32/5/1 Q13. | MUST DO

A4. What is rat-hole mining? Where is it practised? [2]

1. **Meaning:** coal dug by family members through long, narrow tunnels.
2. **Where:** Jowai and Cherrapunjee in Meghalaya, where minerals belong to individuals or communities.

23 words · limit 40 | Marking: 2 points × 1 = 2

A5. Distinguish between magnetite and hematite. [2]

1. **Magnetite:** finest iron ore, up to 70% iron, with excellent magnetic qualities.
2. **Hematite:** most used ore by quantity, with 50–60% iron.

22 words · limit 40 | Marking: 2 points × 1 = 2 | MUST DO

A6. Name the four iron-ore belts of India with one mine in each. [3]

1. **Odisha–Jharkhand:** Badampahar (Mayurbhanj); Gua and Noamundi.
2. **Durg–Bastar–Chandrapur:** Bailadila hills of Chhattisgarh.
3. **Karnataka:** Ballari–Chitradurga–Chikkamagaluru–Tumakuru – Kudremukh.
4. **Maharashtra–Goa:** Goa and Ratnagiri; exported through Marmagao.

28 words · limit 60 | Marking: any 3 of these 4 points × 1 = 3 | MUST DO

A7. State two uses of manganese. [2]

1. **Steel:** about 10 kg is needed to make one tonne of steel and ferro-manganese alloy.
2. **Others:** bleaching powder, insecticides and paints.

21 words · limit 40 | Marking: 2 points × 1 = 2

A8. Why is copper important? Name two copper-producing areas. [2]

1. **Properties:** malleable, ductile and a good conductor – used in cables and electronics.
2. **Areas:** Balaghat (MP), Khetri (Rajasthan), Singhbhum (Jharkhand).

19 words · limit 40 | Marking: 2 points × 1 = 2

A9. How is bauxite formed? Why is aluminium important? [3]

1. **Formation:** by decomposition of rocks rich in aluminium silicates.
2. **Aluminium:** strong like iron yet very light, a good conductor and malleable.
3. **Areas:** Amarkantak, Maikal hills, Bilaspur–Katni; Panchpatmali in Odisha.

30 words · limit 60 | Marking: 3 points × 1 = 3 | Bauxite is non-ferrous: 2026 32/1/1 Q13.

A10. Why is mica indispensable for the electric and electronic industries? Where is it found? [3]

1. **Properties:** high di-electric strength, low power loss and insulation.
2. **Voltage:** it resists high voltage and splits into thin sheets.
3. **Areas:** Koderma–Gaya–Hazaribagh (Jharkhand), Ajmer, Nellore.

26 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

A11. Describe the hazards of mining for miners and the environment. [3]

1. **Health:** dust and fumes cause lung diseases.
2. **Accidents:** roofs may collapse; mines may flood or catch fire.
3. **Environment:** water gets contaminated; waste and slurry degrade land and pollute rivers.

29 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

A12. Why is it necessary to conserve minerals? Suggest two ways. [3]

1. **Finite:** minerals are non-renewable and form over millions of years.
2. **Cost:** deeper mining raises costs and lowers quality.
3. **Ways:** better technology for low-grade ores; recycling metals and using scrap and substitutes.

31 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

Energy

A13. Distinguish between conventional and non-conventional sources of energy. [3]

1. **Conventional:** in use for a long time – firewood, dung cake, coal, oil, gas.
2. **Non-conventional:** newer sources – solar, wind, tidal, geothermal, biogas, atomic.
3. **Nature:** most conventional sources are exhaustible and polluting; most non-conventional ones are renewable and clean.

37 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

A14. Describe the four types of coal. [3]

1. **Peat:** low carbon, high moisture, low heat.
2. **Lignite:** brown coal, soft and moist – Neyveli.
3. **Bituminous:** most used; metallurgical grade smelts iron.
4. **Anthracite:** the highest quality hard coal.

27 words · limit 60 | Marking: any 3 of these 4 points × 1 = 3 | MUST DO

A15. In which geological structures is petroleum found in India? [3]

1. **Rocks:** in tertiary-age rock formations.
2. **Anticlines:** oil collects in the crest of an upfold, in porous layers between non-porous ones.
3. **Fault traps:** between porous and non-porous rocks; gas lies above the oil.

32 words · limit 60 | Marking: 3 points × 1 = 3

A16. Why is natural gas called the fuel of the present century? [2]

1. **Clean:** it gives low carbon dioxide emissions – environment-friendly.
2. **Uses:** fuel for power, raw material for fertilisers and petrochemicals; CNG for vehicles.

21 words · limit 40 | Marking: 2 points × 1 = 2 | MUST DO

A17. Distinguish between hydro-electricity and thermal power. [3]

1. **Source:** hydel – fast-flowing water; thermal – coal, petroleum, natural gas.
2. **Nature:** hydel is renewable; thermal uses non-renewable fuels and pollutes.
3. **Examples:** Bhakra Nangal, Kopili; Namrup, Singrauli, Ramagundam.

26 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

A18. How is nuclear energy obtained? Name its raw materials and where they are found. [2]

1. **How:** by altering the structure of atoms; the heat released makes electricity.
2. **Raw materials:** uranium and thorium – Jharkhand, Aravallis; thorium in Kerala's monazite sands.

24 words · limit 40 | Marking: 2 points × 1 = 2

A19. Why does solar energy have a bright future in India? [2]

1. **Tropical:** India gets plenty of sunshine; photovoltaic cells turn it into electricity.
2. **Rural use:** it can replace firewood and dung cakes, saving forests and manure.

25 words · limit 40 | Marking: 2 points × 1 = 2

A20. What are gobar gas plants? Give their benefits. [3]

1. **Meaning:** biogas plants that use cattle dung.
2. **Energy:** the gas is more efficient than kerosene, dung cake and charcoal.
3. **Manure:** better manure and no burning of dung or wood.

29 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

A21. How is tidal energy produced? Name two suitable places in India. [3]

1. **Trapping:** a floodgate dam traps sea water in an inlet at high tide.
2. **Turbine:** after the tide falls, water flows back to sea through a turbine.
3. **Places:** Gulf of Khambhat, Gulf of Kachchh, Sunderbans.

34 words · limit 60 | Marking: 3 points × 1 = 3

A22. How is geothermal energy produced? Name the two experimental projects. [3]

1. **Heat:** the earth gets hotter with depth; groundwater absorbs heat from rocks.
2. **Steam:** it rises as steam that drives turbines.
3. **Projects:** Parvati valley near Manikarn (Himachal) and Puga valley (Ladakh).

30 words · limit 60 | Marking: 3 points × 1 = 3

B

ANSWER KEY · PART B

Objective – Answer Key

All 20 MCQ and assertion–reason answers, each with a one-line reason so you learn the fact, not only the letter.

Write the option letter **and** the answer, as the marking scheme does – e.g. "(b) ..." followed by the answer text.

Q	Answer	Why (one line)
B1	**(b) Non-ferrous**	Type of 2026 32/1/1 Q13.
B2	**(c) energy minerals**	Type of 2026 32/5/1 Q13.
B3	**(a) a-iii, b-ii, c-i, d-iv**	Type of 2025 32/1/1 Q11.
B4	**(d) Magnetite**	Hematite 50–60%.
B5	**(b) placer deposits**	Not corroded by water.
B6	**(a) as slurry through a pipeline**	A 100% export unit.
B7	**(c) Neyveli**	Tamil Nadu.
B8	**(d) Assam**	Digboi, Naharkatiya.
B9	**(b) Jagdishpur**	1700 km long.
B10	**(c) Manikarn and Puga valley**	Himachal Pradesh and Ladakh.
B11	**(a) Only I is correct**	Mica is non-metallic.
B12	**(c) Nagarcoil to Madurai**	Tamil Nadu.
B13	**(d) Cement**	Also used to smelt iron.
B14	**(b) Narora**	Type of 2026 32/1/1 Q19 (map).
B15	**(a) Gobar gas plant**	Twin benefits.
B16	**(d) thorium**	Used for nuclear power.
B17	**(a) Both A and R are true, and R is the correct explanation of A.**	R explains A. Type of 2025 32/1/1 Q10.
B18	**(b) Both A and R are true, but R is not the correct explanation of A.**	Both true; the real reason is that coal is bulky and loses weight on use.
B19	**(c) A is true, but R is false.**	R false – also Mumbai High, Gulf of Cambay, Andaman and Nicobar.
B20	**(d) A is false, but R is true.**	A false – India is among the least efficient; R true.

C

ANSWERS · PART C

Board Pattern – Answers

Model answers in the marking-scheme pattern. Orange tags show where a similar question came in a board or sample paper.

Conservation of energy

★★★ both 2026 papers · 5 marks (Q17)

C1. "Energy saved is energy produced." Explain with five suitable points. [5]

Saving energy has the same effect as producing more of it.

1. **Finite fuels:** coal, oil and gas are limited; every unit saved lasts longer.
2. **Less generation:** a unit saved need not be produced, so fuel and money are saved.
3. **Clean air:** less burning of fossil fuels means less pollution and global warming.
4. **Efficiency:** India is among the least energy-efficient countries, so saving is urgent.
5. **Habits:** use public transport, switch off unused appliances, use LED and star-rated devices.

77 words · limit 120 | Marking: 5 points × 1 = 5 | Opening + closing line: 1 line each, no extra mark | 2026 32/1/1 Q17(A). | MUST DO

C2. How is energy conservation linked to sustainable development? Suggest measures to conserve energy. [5]

1. **Basic need:** agriculture, industry, transport and homes all need energy, and demand keeps rising.
2. **Twin planks:** conservation and renewable energy are the two planks of sustainable energy.
3. **Future:** saving finite fuels keeps them for future generations.
4. **Measures:** public transport, switching off appliances, power-saving devices.
5. **Renewables:** use solar, wind and biogas in place of fossil fuels.

55 words · limit 120 | Marking: 5 points × 1 = 5 | 2026 32/5/1 Q17(A). | MUST DO

C3. Why is there a pressing need to use non-conventional sources of energy in India? [3]

1. **Dependence:** rising energy use makes India heavily dependent on fossil fuels.
2. **Security:** rising oil and gas prices and shortages threaten energy supply and the economy.
3. **Pollution:** burning fossil fuels harms the environment; sun, wind and biomass are clean and renewable.

40 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

Electricity

★★☆ 2026 32/1/1 · 5 marks (Q17)

C4. Explain the importance of electricity. Why is its per capita consumption treated as an index of development? [5]

1. **Homes:** lighting, cooking, fans, appliances and communication.
2. **Farms:** tube-wells and pumps for irrigation.
3. **Industry and transport:** runs machines, electric trains and metro.
4. **Services:** hospitals, schools, offices and IT need power.
5. **Index:** higher per capita use shows more industry, comfort and services – so it measures development.

45 words · limit 120 | Marking: 5 points × 1 = 5 | 2026 32/1/1 Q17(B). | MUST DO

C5. How is electricity generated in India? Compare the two main methods. [3]

1. **Hydel:** fast-flowing water turns turbines – renewable, e.g. Bhakra Nangal.
2. **Thermal:** burning coal, oil or gas turns turbines – non-renewable, e.g. Singrauli.
3. **Comparison:** hydel is clean but needs big dams; thermal pollutes and uses up fuel.

34 words · limit 60 | Marking: 3 points × 1 = 3

Minerals: occurrence, types and belts

★★★ all 3 papers · 1–5 marks

C6. Describe the modes of occurrence of minerals with examples. [5]

1. **Veins and lodes:** in cracks of igneous and metamorphic rocks – tin, copper, zinc, lead.
2. **Beds:** in layers of sedimentary rocks – coal, iron ore; gypsum and salt by evaporation.
3. **Weathering:** decomposition of surface rocks leaves residual ore – bauxite.
4. **Placer:** alluvial deposits in valley sands and hill bases – gold, silver, tin, platinum.
5. **Oceans:** sea water gives salt, magnesium, bromine; ocean beds hold manganese nodules.

62 words · limit 120 | Marking: 5 points × 1 = 5 | 2026 32/5/1 Q17(B). | MUST DO

C7. Distinguish between ferrous and non-ferrous minerals with examples. Why is India poor in the latter? [3]

1. **Ferrous:** contain iron – iron ore, manganese, nickel, cobalt.
2. **Non-ferrous:** no iron – copper, bauxite, lead, zinc, gold.
3. **India:** its geology gives poor reserves of non-ferrous minerals, especially copper.

27 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

C8. Describe the distribution of iron ore in India. [5]

1. **Odisha–Jharkhand:** high-grade hematite at Badampahar; Gua and Noamundi.
2. **Durg–Bastar–Chandrapur:** Bailadila's super high-grade hematite is exported via Visakhapatnam.
3. **Karnataka belt:** Ballari–Chitradurga–Chikkamagaluru–Tumakuru.
4. **Kudremukh:** a 100% export unit; ore goes as slurry to a port near Mangaluru.
5. **Maharashtra–Goa:** Goa and Ratnagiri; exported through Marmagao.

48 words · limit 120 | Marking: 5 points × 1 = 5 | Match minerals with mines: 2025 32/1/1 Q11. | MUST DO

C9. Describe the occurrence of coal in India. [3]

1. **Gondwana:** over 200 million years old; metallurgical coal of the Damodar valley – Jharia, Raniganj, Bokaro.
2. **Other valleys:** Godavari, Mahanadi, Son and Wardha.
3. **Tertiary:** about 55 million years old – Meghalaya, Assam, Arunachal, Nagaland.

32 words · limit 60 | Marking: 3 points × 1 = 3

C10. Suggest any three measures to conserve mineral resources. [3]

1. **Planned use:** use minerals in a planned, sustainable way.
2. **Technology:** improve methods to use low-grade ores at low cost.
3. **Recycling:** recycle metals, use scrap and substitutes.

26 words · limit 60 | Marking: 3 points × 1 = 3 | MUST DO

C11. Describe any five non-conventional sources of energy in India. [5]

1. **Solar:** photovoltaic cells; plant at Madhapur near Bhuj.
2. **Wind:** largest cluster from Nagarcoil to Madurai; Jaisalmer.
3. **Nuclear:** uranium and thorium; Narora, Tarapur, Kalpakkam.
4. **Biogas:** gobar gas gives energy and manure.
5. **Tidal and geothermal:** Gulf of Khambhat; Manikarn and Puga valley.

40 words · limit 120 | Marking: 5 points × 1 = 5 | MUST DO

D

ANSWERS · PART D

Case-Based – Answers

One line each for the 1-mark parts; separate points for the 2-mark parts. The whole answer stays within the word limit.

D1. Case-Based · Gold in the Riverbed (printed in the booklet) [4]

(i) What type of deposit is this? [1]

A placer (alluvial) deposit.

(ii) Why does gold collect in such deposits? [1]

It is not corroded by water, so it survives being carried and settles in valley sands.

(iii) Name two other ways in which minerals occur, with one example each. [2]

(i) In beds of sedimentary rocks – coal.

(ii) By decomposition of surface rocks – bauxite.

34 words in all · limit 100 | Marking: 1 + 1 + 2 = 4 | Same topic as 2026 32/5/1 Q17(B).

D2. Case-Based · Red Earth to Japan (printed in the booklet) [4]

(i) Name the mineral and the hill range. [1]
Hematite iron ore; Bailadila range.

(ii) Name the port used. [1]
Visakhapatnam.

(iii) Give two reasons why iron ore is called the backbone of industrial development. [2]
(i) It is the basic raw material for iron and steel.
(ii) Steel is needed for machines, buildings, transport and other industries.

28 words in all · limit 100 | Marking: 1 + 1 + 2 = 4

D3. Case-Based · The Village Gas Plant (printed in the booklet) [4]

(i) Name this type of plant. [1]
Gobar gas (biogas) plant.

(ii) Why is this gas better than dung cake as a fuel? [1]
It has higher thermal efficiency and causes less smoke.

(iii) State the twin benefits this plant gives the farmer. [2]
(i) Energy for cooking and lighting.
(ii) Better-quality manure for the fields.

25 words in all · limit 100 | Marking: 1 + 1 + 2 = 4

D4. Case-Based · Oil under the Sea (printed in the booklet) [4]

(i) Name the oil field and the structure that traps the oil. [1]
Mumbai High; anticline.

(ii) Why does the gas lie above the oil? [1]
Gas is lighter than oil.

(iii) Why are refineries called a nodal industry? Give two industries they feed. [2]
(i) They supply raw material to many other industries.
(ii) Synthetic textiles and fertilisers (also chemicals).

24 words in all · limit 100 | Marking: 1 + 1 + 2 = 4

D5. Case-Based · The School Energy Audit (printed in the booklet) [4]

(i) Which idea of energy use does the poster show? [1]
Energy conservation – energy saved is energy produced.

(ii) Why is energy conservation needed in India? [1]
Fuels are finite and India is among the least energy-efficient countries.

(iii) Suggest two steps the school can take. [2]
(i) Switch off lights and fans; use LED lights.
(ii) Encourage car-pooling, buses or cycles.

33 words in all · limit 100 | Marking: 1 + 1 + 2 = 4 | Same theme as 2026 Q17(A) in both papers.

E

ANSWERS · PART E

Map Work – Key

Where each map item lies, so you can check your own outline map.

Map answers are marked only if the place is shown at the right spot **and** its name is written. Use the school's printed outline map. This key tells you where each item lies.

Item	Where it is – check your map against this
Namrup – thermal	**Assam (Dibrugarh district)**
Singrauli – thermal	**Uttar Pradesh–Madhya Pradesh border (Sonbhadra, UP)**
Ramagundam – thermal	**Telangana**
Narora – nuclear	**Uttar Pradesh (Bulandshahr)**
Kakrapar – nuclear	**Gujarat**
Tarapur – nuclear	**Maharashtra (north of Mumbai)**
Kalpakkam – nuclear	**Tamil Nadu**