

ANSWER KEY & MARKING SCHEME · CBSE CLASS 11**Geomorphic Processes**

Geography · Chapter 5 · Use this with the Board Paper · Companion to Quick Drill

HOW TO USE

Attempt the Board Paper first (closed-book, full time). Then come here. For 2-mark+ questions, compare your answer to the model. For 3-4 mark questions, also consult the **Topper Templates** below — these show the exact step-by-step structure that scores full marks per CBSE marking-scheme conventions.

MODEL ANSWERS · BOARD PAPER**Section A — Objective (1 mark each)****Q1. Name the two energy sources that drive exogenic processes. [1 mark]**| **Ans:** Sun + gravity.**Q2. Orogenic movements are (horizontal / vertical) in direction. [1 mark]**| **Ans:** Horizontal.**Q3. Name the chemical weathering process responsible for the Borra Caves of Andhra Pradesh. [1 mark]**| **Ans:** Carbonation.**Q4. Which is the SLOWEST type of mass movement? [1 mark]**| **Ans:** Creep.**Q5. Black cotton soil of the Deccan is derived from which parent rock? [1 mark]**| **Ans:** Basalt.**Section B — Short answers (3 marks each)****Q6. Distinguish endogenic from exogenic processes with one example each. [3 marks]**

Ans: Endogenic processes draw energy from the earth's interior (radioactivity + primordial heat) and BUILD relief — example, the orogeny of the Himalayas. Exogenic processes draw energy from the sun and gravity and WEAR DOWN relief — example, the Ganga eroding its banks. The two oppose each other; relief is their balance.

Q7. Describe the three types of mass movement. [3 marks]

Ans: Classified by SPEED. CREEP — imperceptibly slow drift of soil visible as tilted fence-posts and bent trees on a hillside. FLOW — water-saturated material moving as a viscous fluid; e.g. mudflow on a Himalayan slope after a cloudburst, solifluction in cold tundra. SLIDE — sudden detachment along a plane; e.g. the Kedarnath landslides of 2013. Heavy rain, earthquakes and slope-cutting are the common triggers.

Q8. Differentiate intrusive and extrusive volcanic features with two examples each. [3 marks]

Ans: INTRUSIVE features form when magma cools BELOW the surface; examples — batholiths (large granite domes), dykes (vertical sheets), sills (horizontal sheets), laccoliths (dome-shaped). EXTRUSIVE features form when lava reaches the SURFACE; examples — lava plateaus (Deccan Trap), shield volcanoes (Mauna Loa), cinder cones, composite cones (Fujiyama). Intrusive forms are revealed only when overlying rock is later eroded.

Q9. How does weathering differ from erosion? [3 marks]

Ans: Weathering is the IN-SITU breakdown of rock with no transport — the rock is shattered or chemically altered where it lies. Erosion is the REMOVAL and TRANSPORT of weathered material by an external agent — running water, glaciers, wind or waves. Weathering supplies the loose material; erosion carries it away. A hillside boulder cracked by frost has weathered; the same fragments swept downstream by a river have been eroded.

Q10. Explain the three types of weathering with named sub-processes and examples. [5 marks]

Ans: Weathering is the in-situ breakdown of rock without transport. It has three families. **PHYSICAL / MECHANICAL** — rock fragments without chemical change. Frost action shatters porous Ladakh boulders as water freezes and expands; thermal expansion peels Thar granite as daily heating-cooling stresses the surface; salt weathering eats coastal cliffs as evaporating spray leaves growing salt crystals. **CHEMICAL** — minerals chemically altered. Carbonation dissolves limestone (Borra Caves, Andhra Pradesh); oxidation rusts Vindhyan sandstones red; hydration swells clay minerals. **BIOLOGICAL** — life-driven. Plant roots wedge cracks, lichens secrete acids, earthworms and burrowing animals expose fresh rock. In real landscapes all three families act together — a Himalayan boulder may be frost-shattered, then chemically weathered along the cracks, then prised further apart by tree roots.

Q11. OR — Describe the five factors controlling soil formation, illustrating with one Indian example that ties them together. [5 marks]

Ans: Soil forms from regolith over centuries by the combined action of **FIVE** factors. **PARENT MATERIAL** sets the starting minerals and texture — basalt yields black soil, granite yields red. **TOPOGRAPHY** decides depth and drainage — steep slopes shed thin soils while valley floors hold deep ones. **CLIMATE** controls the rate of weathering and humification — humid tropics weather deep and leached, arid regions shallow and salty. **BIOLOGICAL ACTIVITY** — micro-organisms, plant roots, earthworms and burrowing animals — converts litter to humus and aerates the profile. **TIME** is the patient factor; mature O-A-B-C horizons need centuries to millennia. The black cotton soil of the Deccan unites all five — basaltic parent material, flat plateau topography, semi-arid climate with seasonal wetting and drying, grass-driven humification, and tens of thousands of years on a stable surface have produced one of the world's most productive cotton soils.

Q12. Explain the difference between orogenic and epeirogenic movements, and describe how diastrophism and volcanism together build relief. [3 marks]

Ans: **OROGENIC** movements are **HORIZONTAL**, localised at plate margins, and build folded-faulted mountains like the Himalayas. **EPEIROGENIC** movements are **VERTICAL**, broad, and uplift or depress large parts of continents **WITHOUT** folding — the gentle uplift of the Deccan and the post-glacial rebound of Scandinavia are examples. Together with **FAULTING** and **FOLDING** they form the family of **DIASTROPHISM**. **VOLCANISM** completes the endogenic engine by bringing magma to or below the surface — building extrusive features like the Deccan Trap and intrusive bodies like batholiths. Diastrophism + volcanism together build the relief that exogenic processes then wear down.

★ TOPPER ANSWER TEMPLATES

5 TEMPLATES · MEMORISE THE FORMAT

★ TOPPER TEMPLATE — Topper template 1

Common

COMMON LOSS OF MARKS:

- Skipping definitions or terminology mid-answer
- No clear paragraph/point structure
- Conclusion absent or one-line

★ TOPPER TEMPLATE — Topper template 2

Common

COMMON LOSS OF MARKS:

- Skipping definitions or terminology mid-answer
- No clear paragraph/point structure
- Conclusion absent or one-line

★ TOPPER TEMPLATE — Topper template 3

Common

COMMON LOSS OF MARKS:

- Skipping definitions or terminology mid-answer
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- Conclusion absent or one-line

★ **TOPPER TEMPLATE — Topper template 4**

Common

COMMON LOSS OF MARKS:

- Skipping definitions or terminology mid-answer
- No clear paragraph/point structure
- Conclusion absent or one-line

★ **TOPPER TEMPLATE — Topper template 5**

Common

COMMON LOSS OF MARKS:

- Skipping definitions or terminology mid-answer
- No clear paragraph/point structure
- Conclusion absent or one-line

MARKING SCHEME — GENERAL NOTES

- Section A — accept any phrasing that captures the keyword (e.g. 'sun and gravity' OR 'solar + gravitational' OR 'gravity + insolation').
- Section B — award 1 mark for definition, 1 for classification/description, 1 for example or trigger.
- Section C weathering — 1 mark for definition, 1 mark each for the three families with at least one named sub-process and example, 1 mark for synergy / closure.
- Section C soil formation — 1 mark per factor (x5). Indian example may be bonus but if a student names a wrong factor, deduct 1 mark per omission.
- Indian examples (Ladakh, Borra, Thar, Vindhyan, Kedarnath, Deccan) carry no extra marks individually but the absence of ANY Indian example in a 5-marker should cost 1 mark for context.
- Diagrams (volcanism intrusive/extrusive cross-section, soil profile) carry 1 mark each within the question's allocation if neatly labelled.
- Spelling of named sub-processes (carbonation, hydration, oxidation, solifluction, epeirogenic) is examinable — deduct 0.5 mark per misspelt key term up to 1 mark.