EXAM-DAY · 90-MIN REVISION CARD

Interior of the Earth

Print this · Fold it · Carry to the exam-hall gate · Revise once · Then walk in.

FORMULAS & KEY RESULTS

Deepest hole ever drilled = Kola Superdeep Borehole, about 12 km — interior is known mostly INDIRECTLY.

Direct sources: mining · deep drilling (Kola) · volcanic eruptions.

Indirect sources: density/ pressure/temperature with depth · meteorites · gravity · magnetic field · SEISMIC WAVES (chief).

FOCUS / hypocentre = point inside earth where energy releases; EPICENTRE = point on surface above focus; SEISMOGRAPH records waves.

P-waves = Primary = fastest, longitudinal, travel through SOLID + LIQUID + GAS.

S-waves = Secondary = slower, transverse, travel through SOLIDS ONLY (stopped by liquid).

S-wave shadow zone = beyond ~105 degrees (whole far side) -> proves OUTER CORE is LIQUID.

P-wave shadow zone = ring ~105 to 145 degrees (P-waves refracted by core).

Layers: CRUST (SIAL continental / SIMA oceanic) -> MANTLE (solid; asthenosphere plastic) -> CORE (outer LIQUID / inner SOLID, NIFE).

Discontinuities: Moho (crust-mantle) · Gutenberg (mantle-core) · Lehmann (outer-inner core).

Volcano parts: magma chamber -> vent/pipe -> crater; intrusive (batholith, laccolith, sill, dyke) vs extrusive (lava flows, cones).

TOP 5 PYQ PATTERNS

1 P-waves vs S-waves and the shadow zones
5 marks · 85% of years
P fast, all media; S slow, solids only. S-shadow past 105 deg -> liquid outer core. P-shadow = 105-145 deg ring (refraction).

2 Direct and indirect sources of information about the interior
5 marks · 75% of years
Direct: mining, Kola drilling, volcanic eruptions (crust only). Indirect: density/pressure/temp, meteorites, gravity, magnetism, seismic waves.

3 Layered structure (crust / mantle / core) + discontinuities
5 marks · 70% of years
Crust SIAL/SIMA + Moho; mantle solid + plastic asthenosphere; core outer liquid + inner solid; Gutenberg & Lehmann.

4 Focus, epicentre, seismograph — defining an earthquake
3 marks · 55% of years
Focus inside (source), epicentre on surface above it, seismograph records the waves; greatest damage near epicentre.

5 Volcanoes / intrusive vs extrusive volcanic landforms
5 marks · 60% of years
Intrusive cools below ground (batholith, laccolith, sill, dyke); extrusive erupts at surface (lava flows, cones, shield/composite volcanoes).

90-MIN REVISION FLOW

0-15 min
Write the direct vs indirect sources list from memory. Stress Kola = ~12 km and that the deep interior is known INDIRECTLY, chiefly from seismic waves.

15-30 min
Draw the earthquake diagram (focus inside, epicentre on surface) and write one-line definitions of focus, epicentre and seismograph.

30-45 min
Make the P-vs-S table: speed, wave type, media, order of arrival. Write 'S = solids only' three times. Then draw the shadow-zone diagram and write the two zones (S past 105 deg; P ring 105-145 deg).

45-60 min
Draw the onion cross-section: crust (SIAL/SIMA) -> mantle (asthenosphere) -> outer core (liquid) -> inner core (solid). Label Moho, Gutenberg, Lehmann. Add the volcano section with intrusive vs extrusive forms.

60-75 min
Take the 15-MCQ Quick Drill under a 20-minute timer. Target >= 12/15.

75-90 min
Review every wrong answer; re-read the matching notes-slide. Recite 'P fast all-media, S slow solids-only -> liquid outer core' one final time. Done.

Confidence, not anxiety. You've practised this all year. Trust your steps. Don't change strategy on exam morning.
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