1. Which process is responsible for the formation of igneous rocks?

a) Weathering
b) Erosion
c) Melting and solidification
d) Compaction and cementation

Answer: c) Melting and solidification

Explanation: Igneous rocks form when molten magma cools and solidifies either beneath the Earth’s surface (intrusive) or on the surface (extrusive).

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2. What is the primary characteristic used to classify sedimentary rocks?

a) Mineral composition
b) Color
c) Grain size
d) Hardness

Answer: c) Grain size

Explanation: Sedimentary rocks are classified based on their grain size, which can range from clay-sized particles (mudstone) to gravel-sized particles (conglomerate).

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3. Which type of sedimentary rock is formed from the accumulation and compaction of plant and animal remains?

a) Conglomerate
b) Sandstone
c) Limestone
d) Shale

Answer: c) Limestone

Explanation: Limestone is primarily composed of calcium carbonate derived from the accumulation and compaction of marine organisms such as shells and coral.

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4. What is the process by which sedimentary rocks are transformed into metamorphic rocks due to heat and pressure?

a) Melting
b) Compaction
c) Weathering
d) Metamorphism

Answer: d) Metamorphism

Explanation: Metamorphism occurs when pre-existing rocks (sedimentary, igneous, or metamorphic) undergo changes in mineralogy, texture, or chemical composition due to heat and pressure.

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5. Which of the following is an example of a foliated metamorphic rock?

a) Marble
b) Quartzite
c) Schist
d) Basalt

Answer: c) Schist

Explanation: Foliated metamorphic rocks, such as schist, exhibit a layered or banded appearance due to the alignment of minerals under directed pressure.

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6. What is the most abundant igneous rock in the Earth’s crust?

a) Granite
b) Basalt
c) Obsidian
d) Pumice

Answer: b) Basalt

Explanation: Basalt is the most common extrusive igneous rock found in the Earth’s crust, often forming oceanic crust and volcanic islands.

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7. Which type of rock is formed from the cooling and solidification of lava on the Earth’s surface?

a) Sedimentary
b) Metamorphic
c) Intrusive igneous
d) Extrusive igneous

Answer: d) Extrusive igneous

Explanation: Extrusive igneous rocks, such as basalt and obsidian, are formed from the rapid cooling of lava on the Earth’s surface, resulting in fine-grained textures.

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8. Which of the following rocks is NOT commonly used in civil engineering construction due to its tendency to dissolve in acidic environments?

a) Granite

b) Limestone
c) Sandstone
d) Marble

Answer: b) Limestone

Explanation: Limestone is susceptible to dissolution in acidic environments, making it less suitable for civil engineering construction compared to rocks like granite and sandstone.

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9. Which metamorphic rock is prized for its use in sculptures and building facades due to its smooth texture and variety of colors?

a) Slate
b) Gneiss
c) Marble
d) Quartzite

Answer: c) Marble

Explanation: Marble, formed from the metamorphism of limestone or dolostone, is valued for its aesthetic appeal, smooth texture, and range of colors, making it ideal for sculptures and architectural purposes.

10. Which rock type is commonly associated with India’s Aravalli Range, one of the oldest mountain ranges in the world?

a) Granite
b) Quartzite
c) Gneiss
d) Basalt

Answer: c) Gneiss

Explanation: Gneiss, a metamorphic rock characterized by banded textures, is prevalent in the Aravalli Range, which has undergone extensive geological processes over millions of years, contributing to its metamorphic rock formations.