

1. Which material is commonly used for cost-effective road construction in rural areas?

- a) Concrete
- b) Asphalt
- c) Gravel
- d) Brick

Answer: c) Gravel

Explanation: Gravel is often preferred for cost-effective road construction in rural areas due to its abundance, easy availability, and relatively low cost compared to materials like concrete or asphalt.

2. What is a common stabilization technique used for improving the strength of weak soils in road construction?

- a) Chemical stabilization
- b) Thermal stabilization
- c) Mechanical stabilization
- d) Biological stabilization

Answer: a) Chemical stabilization

Explanation: Chemical stabilization involves the addition of chemicals, such as lime or cement, to weak soils to improve their strength and durability, making them suitable for road construction.

3. Which construction technique involves mixing asphalt emulsion with the existing pavement surface to improve its performance?

- a) Overlay
- b) Milling

- c) Chip seal
- d) Fog seal

Answer: a) Overlay

Explanation: Overlay is a construction technique where a new layer of asphalt concrete is applied over the existing pavement surface, often mixed with asphalt emulsion to enhance its performance and durability.

4. What is the primary purpose of using geotextiles in road construction?

- a) Improving drainage
- b) Enhancing soil stabilization
- c) Providing surface texture
- d) Increasing pavement strength

Answer: b) Enhancing soil stabilization

Explanation: Geotextiles are synthetic materials used in road construction to improve soil stabilization by separating different soil layers and preventing mixing, thereby enhancing the overall strength and performance of the road.

5. Which equipment is commonly used for compacting soil and aggregates during road construction?

- a) Bulldozer
- b) Excavator
- c) Roller
- d) Grader

Answer: c) Roller

Explanation: Rollers are heavy construction equipment used for compacting soil, gravel, asphalt, or concrete during road construction to achieve the required density and strength of the road surface.

6. What is the purpose of a culvert in road drainage systems?

- a) Preventing soil erosion
- b) Directing traffic flow
- c) Controlling water runoff
- d) Providing pedestrian crossings

Answer: c) Controlling water runoff

Explanation: Culverts are structures used in road drainage systems to control the flow of water underneath roads, preventing water buildup and ensuring proper drainage to avoid damage to the road surface.

7. Which maintenance technique involves filling cracks in the road surface to prevent water penetration and further deterioration?

- a) Patching
- b) Sealcoating
- c) Resurfacing
- d) Rehabilitation

Answer: b) Sealcoating

Explanation: Sealcoating is a maintenance technique where a thin layer of protective coating is applied to the road surface to seal cracks and prevent water penetration, extending the lifespan of the pavement.

8. What is the purpose of shoulder grading in road maintenance?

- a) Improving vehicle traction
- b) Enhancing roadside aesthetics
- c) Preventing edge erosion
- d) Reducing traffic congestion

Answer: c) Preventing edge erosion

Explanation: Shoulder grading involves shaping and compacting the roadside area adjacent to the road surface to prevent edge erosion, maintain road stability, and ensure proper drainage.

9. Which test is commonly performed to assess the bearing capacity of soil subgrades for road construction?

- a) Proctor compaction test
- b) California Bearing Ratio (CBR) test
- c) Sieve analysis
- d) Atterberg limits test

Answer: b) California Bearing Ratio (CBR) test

Explanation: The California Bearing Ratio (CBR) test is a standard laboratory test used to determine the strength and bearing capacity of soil subgrades, which is crucial for designing road foundations and pavement structures.

10. Which construction material is known for its ability to reduce soil erosion and sedimentation in road drainage systems?

- a) Concrete
- b) Gabions

- c) Asphalt
- d) Riprap

Answer: d) Riprap

Explanation: Riprap, consisting of large, durable stones, is often used in road drainage systems to control soil erosion and sedimentation by stabilizing embankments, channels, and slopes, thereby protecting the road infrastructure from damage.