1. Which principle is fundamental to highway planning?

a) Flexibility
b) Sustainability
c) Accessibility
d) Efficiency

Answer: c) Accessibility
Explanation: Accessibility ensures that highways are designed to provide easy and convenient access to various destinations for users, maximizing their utility and minimizing travel times.

2. What is the primary purpose of road planning in India?

a) Economic development
b) Environmental conservation
c) Social integration
d) Cultural preservation

Answer: a) Economic development
Explanation: Road planning in India primarily aims to support economic development by improving connectivity, facilitating trade, and enhancing accessibility to markets and resources.

3. Which factor plays a crucial role in financing roads in India?

a) International aid
b) Toll collection

c) Corporate sponsorship
d) Government subsidies

Answer: b) Toll collection
Explanation: Toll collection is a significant source of revenue for financing road projects in India, with users paying fees for using the roads to cover construction and maintenance costs.

4. What is a key requirement for engineering surveys for highway location?

a) Cost-effectiveness
b) Environmental impact assessment
c) Accuracy
d) Public opinion

Answer: c) Accuracy
Explanation: Engineering surveys for highway location require precise measurements and assessments of the terrain to ensure accurate planning and design, minimizing errors and optimizing the use of resources.

5. Which cross-sectional element helps in providing adequate visibility for drivers?

a) Camber
b) Super-elevation
c) Sight distances
d) Extra widening at curves

Answer: c) Sight distances

Explanation: Sight distances ensure that drivers have clear visibility of the road ahead, including potential hazards and other vehicles, allowing for safe maneuvering and decision-making.

6. What does super-elevation refer to in highway design?

a) Road width
b) Road curvature
c) Road surface slope
d) Road surface texture

Answer: c) Road surface slope
Explanation: Super-elevation is the banking or tilting of the roadway around curves, allowing vehicles to travel at higher speeds safely by counteracting centrifugal forces.

7. When is extra widening at curves typically implemented?

a) To reduce construction costs
b) To enhance aesthetic appeal
c) To accommodate larger vehicles
d) To improve drainage

Answer: c) To accommodate larger vehicles
Explanation: Extra widening at curves is often added to accommodate larger vehicles and provide them with sufficient space to maneuver safely without encroaching into adjacent lanes.

8. What do horizontal curves help in mitigating?

a) Pavement wear
b) Tire friction
c) Hydroplaning
d) Centrifugal forces

Answer: d) Centrifugal forces
Explanation: Horizontal curves help in mitigating centrifugal forces, which tend to pull vehicles outward when navigating curves, by appropriately banking the road surface.

9. What is the purpose of vertical curves in highway design?

a) To improve drainage
b) To enhance aesthetics
c) To reduce construction costs
d) To provide smooth transitions

Answer: d) To provide smooth transitions
Explanation: Vertical curves are used to provide smooth transitions between different grades or slopes along a highway, ensuring comfortable and safe driving conditions for motorists.

10. Which element of the cross-section influences water drainage on highways?

a) Super-elevation
b) Sight distances
c) Camber
d) Horizontal curves

Answer: c) Camber

Explanation: Camber refers to the slope or curvature of the road surface from the centerline to the edges, aiding in water drainage by directing runoff towards the road edges and preventing ponding or flooding.