

Fill in the Blanks

1. The geometric design of highways aims to provide _____ and efficient movement of traffic.
Answer: safe
2. The maximum safe speed adopted for highway design is called _____ speed.
Answer: design
3. The distance required for a driver to stop a vehicle safely is called _____. **Sight Distance (SSD).**
Answer: Stopping
4. The distance required for safe overtaking is known as _____. **Sight Distance (OSD).**
Answer: Overtaking
5. The slope provided across the road surface for drainage is called _____.
Answer: camber
6. Raising the outer edge of the pavement on horizontal curves is called _____.
Answer: super elevation
7. Super elevation helps to counteract _____ **force** acting on a moving vehicle.
Answer: centrifugal
8. The central portion separating opposite traffic lanes is called the _____.
Answer: median
9. The portion of the road used by moving vehicles is known as the _____.
Answer: carriageway
10. The strip provided adjacent to the carriageway is called the _____.
Answer: shoulder
11. The additional pavement width provided on curves is called _____ **widening.**
Answer: extra
12. A curve connecting a straight road and a circular curve is called a _____ **curve.**
Answer: transition
13. A vertical curve joining two ascending or descending gradients is called a _____ **curve.**
Answer: summit
14. The vertical curve joining a descending and an ascending gradient is called a _____ **curve.**
Answer: valley
15. The maximum permissible slope of a road is called the _____.
Answer: gradient
16. The friction between the tyres and the road surface is called _____ **friction.**
Answer: lateral
17. Horizontal alignment consists of tangents and _____.
Answer: curves
18. Vertical alignment consists of gradients and _____.
Answer: vertical curves

19. The width of a single traffic lane on most highways in India is _____ m.

Answer: 3.5

20. The design standards for highway geometry in India are recommended by the _____.

Answer: IRC

Multiple Choice Questions (MCQs) on Highway Geometry (Geometric Design of Highways)

1. Geometric design of highways mainly deals with:

- A) Pavement materials
- B) Bridge construction
- C) **Physical dimensions and layout of roads**
- D) Soil testing

Answer: C

2. The maximum safe speed used for highway design is called:

- A) Average speed
- B) Running speed
- C) Journey speed
- D) **Design speed**

Answer: D

3. The primary purpose of providing camber is to:

- A) Increase road width
- B) Reduce traffic
- C) **Drain rainwater from the road surface**
- D) Increase vehicle speed

Answer: C

4. Super elevation is provided on:

- A) Straight roads
- B) Bridges
- C) **Horizontal curves**
- D) Intersections

Answer: C

5. Super elevation helps to counteract:

- A) Gravitational force
- B) Frictional force
- C) Wind force
- D) **Centrifugal force**

Answer: D

6. The minimum distance required to stop a vehicle safely is called:

- A) Overtaking Sight Distance
- B) Headlight Sight Distance
- C) **Stopping Sight Distance**
- D) Intermediate Sight Distance

Answer: C

7. Which type of curve is provided between a straight road and a circular curve?

- A) Reverse curve
- B) Compound curve
- C) **Transition curve**
- D) Valley curve

Answer: C

8. The raised central strip separating opposite traffic is called:

- A) Shoulder
- B) Footpath
- C) Kerb
- D) **Median**

Answer: D

9. The paved portion used by moving vehicles is called the:

- A) Shoulder
- B) Verge
- C) **Carriageway**
- D) Median

Answer: C

10. The strip adjacent to the carriageway is known as:

- A) Median
- B) Footpath
- C) Divider
- D) **Shoulder**

Answer: D

11. Which curve joins two different gradients?

- A) Horizontal curve
- B) Circular curve
- C) **Vertical curve**
- D) Reverse curve

Answer: C

12. A summit curve is provided where:

- A) Two descending gradients meet
- B) **Two ascending gradients meet or an ascending and descending gradient form a crest**
- C) Two horizontal curves meet
- D) Roads intersect

Answer: B

13. A valley curve is provided where:

- A) Two ascending gradients meet
- B) **A descending and an ascending gradient meet**
- C) Two straight roads meet
- D) A bridge begins

Answer: B

14. Extra widening is generally provided on:

- A) Straight roads
- B) Bridges
- C) **Horizontal curves**
- D) Medians

Answer: C

15. The standard width of a single traffic lane in India is generally:

- A) 2.5 m
- B) 3.0 m
- C) **3.5 m**
- D) 4.5 m

Answer: C

16. Camber is expressed as:

- A) Length
- B) Speed
- C) Radius
- D) **Percentage or ratio**

Answer: D

17. The design standards for highway geometry in India are published by:

- A) CPWD
- B) NHAI
- C) **IRC**
- D) BRO

Answer: C

18. Which of the following is not a cross-sectional element?

- A) Shoulder
- B) Median
- C) Camber
- D) **Bridge Pier**

Answer: D

19. Which factor has the greatest influence on highway geometric design?

- A) Building height
- B) Soil color
- C) **Design speed**
- D) Population density

Answer: C

20. Horizontal alignment consists of:

- A) Grades and valleys
- B) **Tangents and curves**
- C) Pavement and shoulders
- D) Bridges and culverts

Answer: B