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Continuing Education Course #165
Roadway Horizontal Alignment Design

1. Which of the following is not one of the fundamental three-dimensional features of a roadway?
 - ☐ a. Roadway transitions
 - ☐ b. Vertical Alignment
 - ☐ c. Cross section
 - ☐ d. Horizontal Alignment
2. _____ is a viable alternative for traffic operations in residential areas.
 - ☐ a. Stop lights
 - ☐ b. Traffic calming techniques
 - ☐ c. Superelevation
3. What is the Side Friction Factor for a speed of 50 mph?
 - ☐ a. 0.25
 - ☐ b. 0.07
 - ☐ c. 0.14
 - ☐ d. 0.29
4. The highest superelevation rate for highways is typically 12%.
 - ☐ a. True
 - ☐ b. False
5. Control runoff lengths are typically _____ range.
 - ☐ a. 100 to 650 ft
 - ☐ b. 700 to 950 ft
 - ☐ c. 1000 to 1400 ft
6. What is the Maximum Relative Gradient for a Design Speed of 40 mph?
 - ☐ a. 0.70%
 - ☐ b. 0.47%
 - ☐ c. 0.66%
 - ☐ d. 0.58%
7. Spiral curves transition from normal tangent sections to full superelevation.
 - ☐ a. True
 - ☐ b. False
8. Which of the following is a criterion for minimum spiral curve length?
 - ☐ a. Sight distance
 - ☐ b. Design speed
 - ☐ c. Lateral vehicle shifts

9. If the AASHTO table value for a desirable spiral curve length is less than the minimum spiral values derived from the equations, which one do you use?

- ☐ a. AASHTO table value
- ☐ b. minimum spiral values

10. For diagrammatic profiles, the minimum vertical curve length can be approximated as _____ times the design speed.

- ☐ a. 2.0
- ☐ b. 3.15
- ☐ c. 0.2
- ☐ d. 0.5

11. Which common Axis of Rotation combinations contains a median width of 15 feet or less?

- ☐ a. Case I
- ☐ b. Case II
- ☐ c. Case III
- ☐ d. Case IV

12. What is the Flatter Radius to Sharper Radius Ratio for a compound curve on an open highway?

- ☐ a. 1:1
- ☐ b. 1.5:1
- ☐ c. 2:1
- ☐ d. 2.5:1

13. _____ is the result of a vehicle's rear wheels not precisely following the same wheel path as its front wheels when traveling through a horizontal curve.

- ☐ a. Skidding
- ☐ b. Overturning
- ☐ c. Offtracking
- ☐ d. Speeding

14. For widening the traveled-way on horizontal curves, the design vehicle should be a passenger car.

- ☐ a. True
- ☐ b. False

15. What is the vehicle makeup for Traffic Condition C?

- ☐ a. Predominantly passenger car, some single-unit trucks
- ☐ b. Majority of single-unit trucks, some tractor-semitrailer combination trucks
- ☐ c. Predominantly tractor-semitrailer combinations

16. The driver's eye height for trucks is 3.50 feet.

- ☐ a. True
- ☐ b. False

17. What is a recommended rate for deceleration?

- ☐ a. 11.2 ft/s²
- ☐ b. 9.5 ft/s²
- ☐ c. 10 ft/s²

18. Which Avoidance Maneuver takes between 10.2 to 11.2 seconds?

- ☐ a. A
- ☐ b. B

- ☐ c. C
- ☐ d. D
- ☐ e. E

19. What is the Passing Sight Distance for 60 mph?

- ☐ a. 700 ft
- ☐ b. 800 ft
- ☐ c. 900 ft
- ☐ d. 1000 ft

20. Passing Sight Distance is dependent on intersection spacing.

- ☐ a. True
- ☐ b. False

21. The type of traffic control containing a left or right turn from a minor road is _____.

- ☐ a. Case A
- ☐ b. Case B2
- ☐ c. Case E
- ☐ d. Case C2

22. Which alternative may be used where stopping sight distance is unavailable?

- ☐ a. Increased design speed
- ☐ b. Increased curve radii
- ☐ c. Decreased offset to sight obstructions

23. Curves should be a minimum of 500 feet in length for a central angle of 5 degrees.

- ☐ a. True
- ☐ b. False

24. The average crash rate for horizontal curves is about _____ times that of other U.S. highway segments.

- ☐ a. Two
- ☐ b. Three
- ☐ c. Four

25. Depressed facilities a measure to minimize nuisance in residential areas.

- ☐ a. True
- ☐ b. False

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