1. The utilization of a properly designed median barrier will, under normal circumstances, have which one of the following results?
   1. The deflection of the vehicle back into the traffic stream
   2. A reduction in the frequency of accidents
   3. Reduction in the number of serious accidents
   4. Reduction in the frequency of one-car accidents
2. Most accurate engineers estimate
   1. Low bidder prices adjusted for inflation
   2. Average annual bid prices
   3. Median price for all cost items
   4. Recent contracts and use low prices
3. Which is the most dangerous condition?
   1. Heavy obstacle near highway on outside of horizontal curve
   2. Heavy obstacle at crest of vertical curve
   3. Heavy obstacle on inside of horizontal curve
   4. Riding with your significant other
4. The annual highway cost per mile to a highway department is best expressed by which one of the following?
   1. Annual maintenance cost/mile + (initial cost – salvage value)/mile
   2. Annual maintenance cost/mile
   3. Annual maintenance cost/mile + (initial cost/mile capital recovery)
   4. Initial cost – salvage value/mile x interest rate
5. In the review of plans prepared by an outside source for a highway bridge, the following items are among those which should be checked.
   * + 1. Structural strength
       2. Economy of design
       3. Clearances
       4. Railing details
       5. Alignment

Which four of the above items are the most important to be checked?

* 1. 1, 2, 3, and 4
  2. 1, 2, 3, and 5
  3. 1, 3, 4, and 5
  4. 2, 3, 4, and 5

1. As part of the increased emphasis on highway safety, design of lane drops at interchanges has received attention. With which one of the following statements do most highway engineers agree on inter change lane drops?
   1. Interchanges should be designed so that the lane to be dropped becomes part of the entrance ramp accelerator lane and can be terminated at the end of the acceleration lane.
   2. Interchanges should be designed so that the lane to be dropped becomes part of thee deceleration lane for the exit lane where traffic volume reductions occur.
   3. Interchanges should be designed so that the basic number through lanes are carried a sufficient distance downstream from the interchange ramp where the traffic volume reduction occurs.
   4. Interchanges should be designed so that the basic number through lanes are carried downstream to the next exit ramp beyond which the traffic volume reduction occurs.
2. Of the following four factors, only three in combination are useful in determining the length of a deceleration lane.
   * + 1. The speed at which drivers maneuver into the auxiliary lane
       2. The speed at which drivers turn after traversing the decel lane
       3. The speed at which drivers merge with other traffic
       4. The manner of decelerating or the deceleration factors

Which three are used in combination?

1. 1, 2, 3, but not 4
2. 1, 3, 4, but not 2
3. 1, 2, 4, but not 3
4. 2, 3, 4, but not 1
5. Which one of the following techniques are effective in reducing the tendency of automobile tires to hydroplane at higher speeds?
   * + 1. Transverse grooving on the concrete pavement
       2. Open-graded surface course in asphalt pavement
       3. Reducing the speed limit to 55 mph
       4. Longitudinal grooving of the concrete pavement
       5. Reducing the pavement cross slope
       6. Increasing the texture of the tire tread

With the options above choose the correct answer

1. 1, 2, 3, & 5, but not 4 & 6
2. 1, 2, 4, & 6, but not 3 & 5
3. 2, 4, 5, & 6, but not 1 & 3
4. 3, 4, 5, & 6, but not 1 & 2
5. The “Service Volume” for any specified level of service on a highway may be defined as which one of the following?
   1. The volume that a highway can accommodate at the peak hour
   2. The maximum volume that can be carried at that level
   3. The volume that the highway can accommodate under free flow conditions
   4. The design hour volume
6. The determining guide rail location on a new highway, what would be the main consideration?
   1. Deflection distance from back of guide rail to a fixed immovable object
   2. Shoulder width
   3. Slope from shoulder break point to toe of slope
   4. Height of embankment
7. To provide an area to construct and maintain an outlet ditch, what kind of right of way is required?
   1. Temporary right of way
   2. Permanent right of way
   3. Temporary occupancy
   4. Permanent easement
8. The addition of an extra lane for passing on a two-lane highway will provide for a safer driving environment, especially if the highway has a high percentage of truck traffic. The best area to locate this passing lane would be?
   1. On the summit of a flat vertical curve
   2. In the sag of a long flat vertical curve
   3. On a long level straightaway with unobstructed passing sight distance
   4. On the up-grade side of a long steep grade, extending a reasonable distance past the summit
9. Which of the following hourly traffic report volumes is generally used in determination of highway design?
   1. 15th highest hourly volume of the future year chosen for design
   2. 20th highest hourly volume of the future year chosen for design
   3. 25th highest hourly volume of the future year chosen for design
   4. 30th highest hourly volume of the future year chosen for design
10. The most important reason for traffic regulations and regulatory signs is?
    1. To promote self-enforcement of regulations by motorists
    2. To promote safe and efficient movement of traffic
    3. To insure that the legal responsibilities of New York State have been fulfilled
    4. To keep the traveling public informed and prevent lawbreakers
11. “Glare interference” from sources of highway lighting is most efficiently reduced by
    1. Reducing effective area of luminaries
    2. Increasing brightness of luminaries
    3. Increasing mounting height of luminaries
    4. Reducing luminaire brightness
12. Which of the uses listed below are shoulders not used for?
    1. Parking disabled vehicles
    2. Secondary ditch
    3. Deceleration lane
    4. Transverse stabilization of mainline pavement
13. Which of the following would have the greatest influence on the geometrics for a proposed right of way?
    1. A traffic count forecast for the design year of the highway
    2. Current traffic counts for an area highways in the immediate area
    3. The number of highways intersecting the alternate route of the proposed highway
    4. The opinions expressed at the public hearing concerning land acquisition
14. An Interstate Highway System is built and maintained in which of the following ways?
    1. Built and maintained solely by the federal government
    2. Built by the federal government and maintained by the state
    3. Built by the state and federal funds and maintained by the state
    4. Built and maintained by the state with federal and state funds
15. Which one of the following is the proper procedure for the construction of profile gradients of drainage and adjacent pavement on a relatively flat surface?
    1. Profile gradient of drainage is steeper than the profile gradient of pavement
    2. Profile gradient of drainage is flatter than the profile gradient of pavement
    3. Profile gradient of drainage is the same as the drainage gradient of pavement
    4. Profile gradient of drainage is independent of the profile gradient of pavement
16. On the highway curve designed for 50 mph speed, the super elevation should be sufficient
    1. To avoid centrifugal force
    2. To drive with 50 mph speed without considering the friction between tires and pavement
    3. To drive along the curve at 50 mph speed and safely pass through the curve
    4. To drive along the curve faster than 50 mph
17. For commercial and residential driveways, the percent grade for the portion within the states right of way should be within which of the following?
    1. 2 to 5
    2. 6 to 12
    3. 13 to 18
    4. 20 to 24
18. According to the Highway Design Manual published by the State Department of Transportation, a detailed list of information is made available for perspective contractors for bidding contracts. Which of the following is part of that detailed list?
    * + 1. Highway cross sections
        2. Sub surface information
        3. Drainage estimates
        4. Paving estimate
    1. All but 1
    2. All but 2
    3. All but 3
    4. All but 4
19. Which one of the following types of lines should generally stand out or be most visible on a drawing?
    1. Center line
    2. Dimension line
    3. Hidden line
    4. Object line
20. A drawing that shows in picture form the different parts of an object and how they fit together is most commonly known as which of the following?
    1. Perspective drawing
    2. One view drawing
    3. Oblique drawing
    4. Exploded view
21. When a scale of 1” = 30’ is shown on a drawing, which one of the following would be most useful in determining distances?
    1. 30⁰ triangle
    2. Engineers scale
    3. Slide rule
    4. Architects scale
22. Which one of the following would be most useful in measuring on a map, the area of a parcel of land that is bordered on 1 side by a stream?
    1. Planimeter
    2. Protractor
    3. Transit
    4. Pantograph
23. Plans and elevations are frequently drawn at a relatively small scale, then parts of these plans and elevations are drawn at a larger scale, or even full size, to prove that what is shown at a smaller scale is possible to build. Which one of the following is the proper technical term for this type of larger scale drawing?
    1. Preliminary drawing
    2. Display drawing
    3. Design drawing
    4. Detail drawing
24. In a 24’ wide pavement super elevated at ½” per foot:
    1. The center is 6” above both edges
    2. The center is 12” above both edges
    3. The pavement is 12” thicker at one edge than the other
    4. The pavement is 12” higher at the outside edge
25. How is the centerline designated on a plan drawing?
    1. Short dashes
    2. Long dashes
    3. Long & short dashes
    4. Solid
26. Materials to be placed in a subbase course must pass the following gradation test

Sieve size % passing by weight

2” 100%

¼” 30-65%

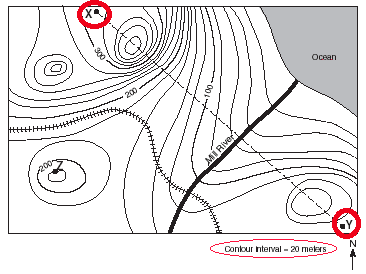
#40 5-40%

#200 0-10%

A sample must be rejected if:

* 1. 40% was retained on the ¼” sieve
  2. 28% passed the ¼” sieve
  3. 25% was retained on the #40 sieve
  4. 20% passed the #40 sieve

1. When aggregate for cement is delivered at the mixing site immediately after being washed, what should be done to reduce the moisture content?
   1. Heating the body of the delivery truck
   2. Discharging it from the truck via a heated chute
   3. Placing it in a stockpile
   4. Adding it to and mixing it with drier aggregate
2. Upon inspection of a built up roof showed one place where exposed but dry and unbroken felt was exposed. The rest of the coating is sound; without any visible blistering or scaling or cracking. The best response is to
   1. Remove all covering and recover with new felt and new coating
   2. Remove the entire roof and replace
   3. Cover the exposed area with a layer of new coating
   4. Do nothing if the felt is not broken or cracked
3. What is the chief reason for preferring the use of machine pavers over hand finishing?
   1. Allows the use of wetter cement
   2. Less room is needed for maneuvering equipment
   3. A better riding surface is produced
   4. Less likely to produce efflorescence in the surface
4. In the contour drawing the difference in elevation between points X and Y is?
   1. 180’
   2. 310’
   3. 230’
   4. 210’



1. In preparing a pencil drawing of a design what is the correct order of procedure?
   * + 1. Draw in curves and small irregularities
       2. Lightly show lines of extension
       3. Shade in appropriate areas
       4. Darken straight lines and draw dimension lines
       5. Lightly draw the general shape
       6. Put in arrow heads, numerals, and lettering

The correct procedure is:

1. 1, 5, 2, 4, 3, 6
2. 2, 1, 4, 6, 5, 3
3. 5, 1, 2, 4, 3, 6
4. 4, 1, 5, 3, 6, 2
5. What is the elevation at station 10+00 on the profile below?
   1. 149.5’
   2. 147.0’
   3. 150.5’
   4. 150.1’

10+00

LVC 400’ ELEV 150’

+3.2% r -2.87%

PVC 8+00 PVT 12+00

ELEV 143.6

1. A

2. C

3. A

4. C

5. B

6. C

7. C

8. B

9. B

10. C

11. D

12. D

13. D

14. B

15. C

16. B

17. A

18. D

19. A

20. C

21. B

22. D

23. D

24. D

25. B

26. A

27. D

28. D

29. C

30. B

31. C

32. C

33. C

34. A

35. C

36. B