Continuing Education Course #326
Railroads - An Introduction

1. The North American railway gauge is _____.
- a. 8 feet 6 inches
- b. 6 feet 4 inches
- c. 5 feet 9 inches
- d. 4 feet 8.5 inches

2. Train Resistance includes all except _____.
- a. Acceleration resistance
- b. Electrical resistance
- c. Grade resistance
- d. Wind resistance

3. For rolling cars with no rail lubrication, Curve Resistance is generally calculated as ____ pounds per ton per degree of curvature.
- a. 0.2
- b. 0.4
- c. 0.6
- d. 0.8

4. A Ruling Grade is the grade which most limits the ability of a locomotive to _____ a train over a specific section of railway.
- a. Accelerate
- b. Move
- c. Stop
- d. None of the above

5. A Railway Curve is defined by the degree of curvature using a 100 foot _____.
- a. Arc
- b. Chord
- c. Tangent
- d. Radius

6. Vertical Curves are used to _____.
- a. Minimize stresses to the car couplers
- b. Improve the ride comfort for passengers
- c. Prevent damage to the freight being shipped
- d. All of the above

7. True or False: Rapid Transit and Light Rail Transit can normally handle 5-6% grades, with the exception of the approaches to and the departures from stations.

○ a. True
○ b. False

8. Different cities use a variety of track gauges for their _____ lines.
○ a. Heavy Freight
○ b. Heavy Rail Transit
○ c. Light Rail Transit

9. True or False: For a railroad company, the amount of rail deflection is one of the best measurable indicators of when the ballast needs to be surfaced.
○ a. True
○ b. False

10. The subgrade is the existing soil structure that supports the ballast and is sometimes referred to as the _____.
○ a. Roadbed
○ b. Railbed
○ c. Trackbed
○ d. None of the above

11. True or False: The sub-ballast tends to drain water away from the subgrade which avoids saturating the subgrade and weakening it.
○ a. True
○ b. False

12. The depth of the sub-ballast in old rail lines is a good indicator of the _____ of the subgrade.
○ a. Bearing capacity
○ b. Water table
○ c. Ballast size
○ d. None of the above

13. Rule of Thumb: Soils lose approximately ____% of their strength when they are saturated.
○ a. 28
○ b. 33
○ c. 50
○ d. None of the above

14. The sizing and locations of stormwater discharge points are critical to _____.
○ a. Avoid upstream and downstream flooding
○ b. Avoid saturating the soils under the railroad
○ c. A and B
○ d. None of the above

15. The ballast is sometimes referred to as the _____.
○ a. Railbed
○ b. Trackbed
○ c. A and B
○ d. None of the above

16. A The life span of timber ties ranges from _____ years.
○ a. 8 to 25
○ b. 30 to 60

- ○ c. 45 to 60
- ○ d. None of the above

17. Which is not a benefit of concrete ties?
- ○ a. Longer life spans for track and cars
- ○ b. Lower weight than timber ties
- ○ c. Lower fuel consumption
- ○ d. Lower levels of maintenance

18. What does the "////" mean on a rail with the marking of 136 HF OH CF&I 1941 //// E 17?
- ○ a. The manufacturing process code
- ○ b. The rail design code
- ○ c. The month of manufacture
- ○ d. The manufacturer's identification code

19. True or False: Most derailments occur at turnouts.
- ○ a. True
- ○ b. False

20. Frogs are specified by a frog number with the smaller the frog number the _____ the angle of divergence.
- ○ a. Smaller
- ○ b. Greater
- ○ c. Not applicable

21. Railroad companies dislike road crossings because _____.
- ○ a. They don't make money on crossings
- ○ b. Of the cost to maintain the crossing
- ○ c. No one likes a railroad crossing
- ○ d. All of the above

22. True or False: Road crossings are actually part of the railroad track structure... not the roadway's.
- ○ a. True
- ○ b. False

23. Which types of crossings receive the most complaints and create the most headaches for the railroads?
- ○ a. Rural
- ○ b. Suburban
- ○ c. Urban
- ○ d. Elevated
- ○ e. None of the above

24. Ladder tracks are used to _____.
- ○ a. Temporarily park rail cars
- ○ b. Move rail cars as needed for shipping or receiving
- ○ c. May be used by a customer's locomotive
- ○ d. All of the above

25. Guard rails can be found on _____.
- ○ a. Curves with a tight radius
- ○ b. Switches

- ○ c. Crossings
- ○ d. All of the above