

Final Exam
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 rail 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