1 Exam Prep
Prov Module: 28306-05
Distance Measurement and Leveling
Questions and Answers

1. Site layout involves extensive use of ___________ plans.

A. Foundation  
B. Elevation  
C. Floor  
D. Plot

2. Contour lines are used on site/plot plans to show __________ elevations.

A. Natural grade  
B. Finish grade  
C. Both natural and finish grade  
D. Finish floor

3. Masons should _never_ make any measurements that relate to ____________.

A. Footings and foundations  
B. Working control points  
C. Layout of embedded items  
D. Property lines

4. Lath-type site markers are used mainly as ____________.

A. Guards for hub stakes  
B. Control points  
C. Temporary bench marks  
D. Secondary control point

5. All of the entries below are recommended practices for referencing a point such as a bench mark or control point, _except_ _____________.

A. Reference objects located in the same direction from the point rather than different directions  
B. Establish at least three definable permanent references for each point  
C. Stay within one tape length of the point being used as a reference  
D. Draw a complete sketch in the field notes
6. All of the following are recommended practices for marking information on stakes except ______________.
A. Use all capital letters
B. Do not crowd words and numbers
C. Use abbreviations whenever possible
D. Mark the main information on the direction of use

7. You are the rod person. If the instrument person turns his or her back to you, it may mean ____________.
A. The reading is completed
B. Use long rod
C. The rod is upside down
D. Move back to the last location

8. Taping or chaining involves ____________.
A. Making horizontal distance measurements
B. Marking elevations
C. Color coding bench marks
D. Grading job sites

9. When using a steel tape you should ____________ to get the most accurate results.
A. Pull it as tightly as possible
B. Apply the proper amount of tension
C. Correct for the sag in the middle of the tape
D. Use the highest setting on the tension spring

10. The piece of equipment used to mark measurement points at the site so they are more visible is the ____________.
A. Clamp
B. Chaining pin
C. Gammon reel
D. Range pole

11. A short handheld telescope with a bubble level built into it is a ____________.
A. Gammon reel
B. Builder's level
C. Transit
D. Hand sight level
12. Small red and white striped pins used to mark temporary positions during the chaining process are called ____________.

A. Chaining pins  
B. Temporary bench markers  
C. Hub stakes  
D. Surveyor's tacks

13. In surveying and site layout work, mistakes ____________.

A. Do not happen  
B. Follow the laws of probability  
C. Can be eliminated by checking and rechecking your work  
D. Occur as a result of limitations in surveying equipment

14. When using 100’ tape you measure four full tape lengths and 40.75’. What is the total; distance measured?

A. 359.25’  
B. 400’ 3 1/3  
C. 403’ 3”  
D. 440.75’

15. The process called breaking the tape is used to ____________.

A. Measure a distance on a steep hill  
B. Measure distances shorter than the nominal length of the tape  
C. Correct the tape reading for temperature variations  
D. Make sure the tape is level

16. Convert 3’- 4 ¼” to decimal feet.

A. 3.066’  
B. 3.333’  
C. 3.354’  
D. 3.510’

17. Convert 6.875’ to feet and inches.

A. 6’- 2 ¼”  
B. 6’-8 ¼”  
C. 6’-10 ½”  
D. 6’-12 ½”
18. The distance between two existing points is 500'. If you use a 100' (nominal) tape calibrated to be 99.90' long to measure the distance between the two points, what distance will you actually measure?

A. 499.50'
B. 500.00'
C. 500.25'
D. 500.50'

19. If you use the same 100' tape described above to lay out a specified distance of 400', what distance should you lay out after taking into account the correction factor for the tape?

A. 399.60'
B. 400.00'
C. 400.20'
D. 400.40'

20. The recommended method for calibrating a tape that has been used in the field is __________________.

A. To check the tape manufacturer’s literature
B. Compare it to a Lova or Invar tape
C. Measure a known distance
D. Check it for kinks, splices, or breaks

21. If the distance between two points is 350' and it takes you 140 paces to cover the distance, your average pace length is ________________.

A. 2.00'
B. 2.25'
C. 2.50'
D. 2.75'

22. It takes you a total number of 200 paces to cover a known distance of 100' five times. After first determining your average pace length, solve the following problem. If it takes you 60 paces to cover an unknown distance between two points, the distance is approximately ________________.

A. 120'
B. 130'
C. 140'
D. 150'

23. Electronic distance measurement instruments have ________________.

A. Been replaced by laser instruments
B. Replaced chaining
C. Replaced taping
D. Have not replaced taping
24. The main difference between a transit level and a builder's level is that the transit level __________.

A. Does not have a leveling vial  
B. Can be used to measure vertical angles  
C. Does not have a graduated horizontal circle scale  
D. Has a vernier scale

25. As indicated at the pencil point, the architect's leveling rod shown in Figure 1 reads __________.

A. 3.14'  
B. 3'-1 3/8"  
C. 3'-1 3/8"  
D. 3.05'

26. As indicated at the pencil point, the engineer's leveling rod shown in Figure 2 reads __________.

A. 8'-9 7/8"  
B. 9' 7/8"  
C. 8.98'  
D. 8.99'
27. In the differential leveling procedure, the __________ is determined by __________ the backsight elevation __________ the known elevation.

A. Height of instrument (HI); adding; to
B. Turning point (TP) elevation; subtracting; from
C. Height of instrument (HI); subtracting; from
D. Turning point (IT) elevation; adding; to

28. What is the elevation of the anchor bolt (A-bolt) shown in Figure 3?

A. 781.22'
B. 784.99'
C. 787.04'
D. 792.86'

29. Each of the entries below is a recommended practice for making field notes except __________.

A. Sketches should be used freely to illustrate your work
B. If it is necessary to correct measurement data, neatly erase it and write in the correct data
C. Make references to any information that has been copied from another source
D. Write notes so that they leave no room for misinterpretation

30. When checking the angle formed by the corner of a 15' wall and a 20' wall for square using the 3-4-5 rule, the best angular accuracy is obtained if the multiple of is used.

A. 9-12-15
B. 12-16-20
C. 15-20-25
D. 30-40-50
Answer Key

1. D 2.0.0
2. C 3.0.0
3. D 4.0.0
4. D 4.1.0
5. 
6. C 4.3.0
7. C Figure 10
8. A 6.0.0
9. A 6.1.0
10. D 6.2.0
11. D 6.4.0
12. A 6.5.0
13. C 7.1.0
14. D 100 x 4 = 400. 400 + 40.75 = 440.75
15. A 7.3.0
16. C To convert a fraction to a decimal, divide numerator by denominator, so \( \frac{1}{4} = .25 \) \((1 \div 4)\). \( .25 \div 12 = .021 \) (To convert inches to decimal feet divide inches by 12). So \( 4' \div 12 = .333 \). \( .333 + .021 = .354 \). Plus 3' = 3.354 decimal feet.
17. C 6 already = 6 feet. To get inches multiply what is right of the decimal point by 12. \( .875 \times 12 = 10.5'' \). So 6 feet, 10 ½ inches.
18. D The tape measures 100’ for every 99.90’. So, to be accurate, add .10 every 100’. 5 x .10 = .50. 500 + .50 = 500.50
19.
20.
21.
22.
23. D 9.0.0
24. B 10.1.2
25.
26.
27. 11.2.0
28.
29. B 11.2.0
30. C 15.0.0