

Candidate Number _____

TENNESSEE BOARD OF EXAMINERS FOR LAND SURVEYORS

TENNESSEE STATE SPECIFIC LAND SURVEYOR EXAM (TLS)

SAMPLE EXAMINATION

(Answers not available)

INSTRUCTIONS

This is an OPEN BOOK EXAMINATION. You are NOT to write your name or any other identification on this examination except the candidate number assigned to you for this examination. Enter your candidate number in the space provided at the top left corner of this page.

If there is not enough room on the examination to do your work, you may use the blank sheets of paper provided by proctor to do scratch work on. No scratch pieces of paper are to be passed on to other candidates taking this examination.

ONLY CALCULATORS APPROVED BY THE NCEES MAY BE USED ON THIS EXAMINATION. THERE WILL BE ABSOLUTELY NO EXCEPTIONS TO THIS POLICY. Any calculator, computer, or other items that may compromise the security of this examination are not allowed. **CELL PHONES, PAGERS, CAMERAS AND VOICE RECORDERS ARE ABSOLUTELY NOT ALLOWED IN THE EXAMINATION ROOM.**

On multiple choice questions, circle the preceding letter of the one option that best answers or completes each numbered question. For fill in type questions, use the lined space provided after each question to place your written response(s). The proctor is not to assist you in interpreting questions or in the solution of problems. There are 22 questions. Each question is worth 4 %, except questions 21 and 22 are each worth 10%. The maximum possible score is 100%.

If you must leave the examination room for any reason before the examination period is over, please turn over your exam and raise your hand to get the attention of the proctor for permission to leave.

Once the proctor announces the end of the examination, immediately close your examination and remain seated and quiet until the proctor has picked up all examinations and has given you permission to leave. **THE EXAMINATION, ALL SCRATCH PAPER, AND ANY OTHER TESTING MATERIALS MUST BE RETURNED TO THE PROCTOR.**

1. A record monument exists because of a reference or call for it in a deed or legal description. Which of the following is a true statement about record monuments in Tennessee?
 - a. Artificial monuments cannot be record monuments.
 - b. Record monuments are always marked on the ground.
 - c. Curb lines, streets or fence lines can be examples of record monuments.
 - d. N.G.S. concrete monuments with bronze caps are always considered record monuments.

2. In accordance with the Tennessee Code Annotated (T.C.A.), Title 62, Chapter 18, Section 102, the "Practice of Land Surveying" includes the act of measuring and locating:
 - a. natural and man-made features on the beds of bodies of water.
 - b. topography, drainage, alignments and grades of streets.
 - c. both of the above.
 - d. none of the above.

3. In a subdivision of a riparian tract in Tennessee, any land or lots separated from adjoining the water:
 - a. retains its riparian rights in and to the body of water unless otherwise expressed in a conveyance.
 - b. loses its riparian rights in and to the body of water unless otherwise expressed in a conveyance.
 - c. all separated lots within the subdivision receive an automatic 15 foot easement to and along the shore of the body of water.
 - d. all separated lots within the subdivision and lying within the watershed of the body of water receive an automatic 15 foot easement to and along the shore of the body of water.

4. Along legally navigable streams as defined in Tennessee law, riparian ownership extends to:
 - a. low water mark.
 - b. the thread of the stream.
 - c. high water mark.
 - d. the vegetation or "rake" line along the bank.

5. In order to place a culvert under a roadway, you are required to compute the station of the low point in a vertical road curve. The 300-foot vertical curve has an entrance grade of -10.00% and an exit grade of +2.00% both intersecting to a PVI at station 15+35.00. It is required to fix the elevation of the low point of the road at 210.60. What is the centerline station of the low point in the vertical curve?
 - a. 15+35.00
 - b. 13+85.00
 - c. 16+85.00
 - d. none of the above

6. A political entity in Tennessee, such as a county or town, generally has an estate or interest in a right of way held as
 - a. a fee simple interest.
 - b. an easement.
 - c. an eminent domain.
 - d. a license.

7. In Tennessee, a "Mortgage Loan Inspection" or a "Mortgage Loan Certificate" is:
- considered a limited nonmonumentation procedure.
 - defined and regulated by the Tennessee Board's "Standards of Practice."
 - Both of the above.
 - None of the above.
8. The peak storm water discharge from an area of mixed development is to be determined in order to size a culvert to handle a 25 year design storm. Assuming this development is in the greater Nashville area and a rainfall duration of 20 minutes, using the rational formula, $Q = CIA$, determine the peak storm water discharge for this area taking into account the following mix of land use and associated acreages and runoff coefficients.

<u>Land Use</u>	<u>Area</u>	<u>Runoff Coefficient</u>
mini-mall shopping	1 acre	0.90
townhouse development	6 acres	0.75
single-family homes	21 acres	0.40
park land	2 acres	0.25

- 89.7 cfs
 - 61.9 cfs
 - 74.4 cfs
 - none of the above
9. In Tennessee, the courts and the public expect and hold the Registered Land Surveyor to
- established standards of practice
 - reasonable care and skill
 - honesty and integrity
 - all of the above

10. A trapezoidal channel has an 8.00 foot wide bottom, 3:1 side slopes, a depth of 1.00 foot and a channel longitudinal slope of 4.0 percent.

Using Manning's Formula, $Q = (1.486/n) s^{0.5} r^{0.67} a$, and the hydraulic radius = a/wp ,

determine the capacity of the channel flowing full. Assume the channel is lined with grass, for which Manning's roughness coefficient = 0.04 .

- a. 68.5 cfs
 - b. 12.6 cfs
 - c. 43.4 cfs
 - d. none of the above
11. A portion of a new deed description written by a Tennessee Land Surveyor reads as follows: “... thence N 47° 20' 15" E, 215.21 feet along the Southeasterly line of land of John L. Smith to a point; thence S 20° 14' 30" E, 1145.67 feet along the Westerly line of land of David M. Brown” the term “to a point” would be considered
- a. an acceptable description of said point.
 - b. an inadequate description of said point.
 - c. the law or rules do not address this issue.
 - d. none of the above
12. A Registered Land Surveyor in Tennessee may affix his or her seal and signature to survey plats and descriptions developed by others not under his or her direct personal supervision and authority provided
- a. another Tennessee Registered Land Surveyor was guiding the development of such documents.
 - b. the Registered Land Surveyor sealing such documents carries adequate errors and omissions insurance to cover potential damages that could result from mistakes or improper judgements.
 - c. the client contracting for such services has requested that this Registered Land Surveyor seal such documents and said client assumes any liability.
 - d. none of the above

13. A large parcel being surveyed is described by a metes and bounds description which makes reference to and matches a 1966 plat that is recorded at the Wilson County Registry of Deeds. It is apparent from the 1966 plat that the record bearings are referenced to True North and that record distances are horizontal ground distances. In order to perform boundary line analysis comparing field evidence with record evidence
- the bearings, distances and area computed from Tennessee State Plane Coordinates of the field evidence should be converted to the same system as the 1966 plat.
 - the bearings, distances and area computed from Tennessee State Plane Coordinates of the field evidence should be converted to grid bearings, grid distances and grid areas.
 - no conversion would be necessary.
 - none of the above.
14. When analyzing conflicting boundary evidence in Tennessee, which of the following normally carries the highest weight unless otherwise specified?
- uncalled for iron rods
 - bearing and distance calls.
 - called for natural objects or landmarks.
 - called for artificial markers or monuments.
15. Corporations, partnerships and firms maintaining any place of business in the State of Tennessee for the purpose of providing or offering to provide land surveying to the public shall have in responsible charge of such service at any and each location a Registered Land Surveyor who shall be employed at such location at least
- full time.
 - 3/4 time.
 - 1/2 time.
 - None of the above.

16. For purposes of describing the location of any survey station or land boundary corner in Tennessee, although not required, it shall be considered a complete, legal, and satisfactory description of such location to give the position of such station or corner in terms of plane coordinates of the Tennessee Coordinate System of 1983.
- a. True, per Tennessee Code Annotated
 - b. This method of describing land is not allowed per regulations of the Tennessee Board of Examiners for Land Surveyors
 - c. This has been ruled an insufficient means of describing land per Tennessee court case law
 - d. None of the above
17. In Tennessee, the usual repository for deeds of land conveyance is the _____
- a. County Assessor's Office
 - b. City or Town Assessor's Office
 - c. County Register of Deeds Office
 - d. City or Town Clerk's Office
18. As a Registered Land Surveyor in Tennessee, you are allowed by law to perform on site percolation tests for a proposed subsurface sewerage disposal system.
- a. True
 - b. False
 - c. True only if you are also registered as a professional engineer or as a soil scientist
 - d. None of the above

19. Define "subdivision" as provided in Tennessee Statutes.

20. The geodetic azimuth of a line in the Tennessee State Plane Coordinate System of 1983 is $132^{\circ} 37' 42''$ and the convergence angle is $0^{\circ} 23' 18''$. If the line lies east of the Central Meridian, determine the Grid Azimuth of the line.

21. Given the attached drawing of land known as the Hale Property, write a metes and bounds description for the 36.37 acre parcel shown thereon that the surveyor performing the survey would certify and that meets the Tennessee Board of Examiners for Land Surveyors standards for land descriptions. Please write description clearly, legibly and in a professional manner.

(NOTE: this question is worth 10 points)

22. Referring to the plat of the Hale Property attached, prepare a subdivision layout scheme for this parcel taking into consideration the following constraints and the constraints and physical details indicated on the plat. Show approximate (+/-) bearings, distances and areas for all lots. In addition, indicate or add necessary details that would typically be needed for a subdivision plat to be approved by a local planning commission and recorded at the county registry of deeds. Make up any needed information in order to complete your plat. The plat does not have to be a finished product, but must be neat and legibly done in freehand except for using a straight edge and protractor for your line work. This property contains 36.37 acres. (NOTE: this question is worth 10 points)

Minimum lot size 1 acre.

Minimum lot frontage 100 ft.

Minimum street right-of-way 50 ft.

Minimum cul-de-sac radius 50 ft.

Minimum setbacks: 30 ft. front / 20 ft. side / 10 ft. rear

Municipal sewer and water available