

**GEOGRAPHIC INFORMATION SYSTEMS
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***** EXAMINATION *****

**STANDARDS AND GUIDELINES FOR CADASTRAL
SURVEYS USING GLOBAL POSITIONING SYSTEMS**

1. **FGDC is the abbreviation for**
 - a) Federal Geographic Data Committee
 - b) Federal Geodesy Datum Committee
 - c) Federal Geological Data Committee
 - d) Federal Geodesy Data Committee

2. **The required level of position accuracy is checked using**
 - a) the Compass Rule
 - b) the Transit Rule
 - c) a least squares adjustment
 - d) All of the above

3. **These guidelines are for**
 - a) data processing
 - b) field procedures
 - c) field data acquisitions
 - d) All of the above

4. **Evaluating the survey can be done using these guidelines**
 - a) and local standards
 - b) and a city standard
 - c) and the equipment manufacturer's specifications
 - d) All of the above

5. **A survey performed with GPS technology should be**
 - a) repeatable
 - b) legally defensible
 - c) referenced to the National Spatial Reference System
 - d) All of the above

6. **Accuracy can be demonstrated by**
 - a) station redundancy
 - b) baseline redundancy
 - c) both a and b
 - d) None of the above

7. **Following the recommended procedures and required accuracy**
 - a) can be demonstrated by the baseline processing
 - b) can be demonstrated by the data adjustment
 - c) can be demonstrated by the data analysis
 - d) All of the above

8. **Changes to guidelines evolve as advancements occur in**
 - a) field personnel salaries
 - b) equipment and techniques
 - c) both a and b
 - d) None of the above

9. **Variation from guidelines may be the result of**
 - a) the size of the project
 - b) the scope of the project
 - c) the site conditions of the project
 - d) All of the above

10. **All variations from the guidelines**
 - a) shall be documented in the project report
 - b) shall affect the final payment for the project
 - c) shall affect future work opportunities
 - d) All of the above

11. **Static positioning typically uses a**
 - a) single GPS unit
 - b) six or more GPS units
 - c) network
 - d) either a or b

12. **Static positioning may consist of**
 - a) multiple receivers
 - b) multiple baselines
 - c) multiple observational redundancies
 - d) All of the above

13. **Static positioning**
 - a) is limited to one session
 - b) is limited to two sessions
 - c) is limited to three sessions
 - d) uses multiple sessions

14. **The least squares adjustment**
- a) provides the highest accuracy
 - b) requires the longest observation times
 - c) both a and b
 - d) None of the above
15. **Fast-static positioning requires occupation times**
- a) from 1 to 2 minutes
 - b) from 5 to 20+ minutes
 - c) from 20 to 60 minutes
 - d) from 2 to 3 hours
16. **Fast-static positioning may use**
- a) a radial baseline technique
 - b) a network technique
 - c) both a and b
 - d) None of the above
17. **Fast-static positioning requires use of processing software**
- a) capable of a weighted mean average of observations
 - b) capable of a weighted mean average of epochs
 - c) capable of a weighted mean average of variables
 - d) capable of a weighted mean average of equations
18. **Post-processed kinematic survey methods can be used**
- a) when there are minimum obstructions of the satellites
 - b) when all observations are taken in a road only
 - c) when all observations are taken in a river only
 - d) when all observations are taken near buildings only
19. **Post-processed kinematic positioning**
- a) uses increased observation times compared to static
 - b) uses reduced observation times compared to fast-static
 - c) both a and b
 - d) None of the above
20. **Real-time kinematic positioning does**
- a) requires post-processing of the data to obtain a position
 - b) not require post-processing of the data to obtain a position
 - c) not allow the surveyor to do stake out in the field
 - d) not allow the surveyor to use data collectors

21. **Real-time surveying technology**
- a) utilizes dual-frequency techniques only
 - b) utilizes single-frequency techniques only
 - c) utilizes dual-frequency techniques
 - d) Any of the above
22. **Real-time surveying technology is subject to baseline**
- a) limitations of 2 kilometers
 - b) limitations of 5 kilometers
 - c) limitations of 8 kilometers
 - d) limitations of 10 kilometers
23. **Real-time kinematic methods are acceptable if they result**
- a) in a solution which meets the survey standards
 - b) in a solution which meets the party chief's standards
 - c) in a solution which meets the project manager's standards
 - d) None of the above
24. **Field survey operations should be performed using the**
- a) manufacturer's recommended receiver setting and observation times
 - b) BLM's recommended receiver setting and observation times
 - c) USGS's recommended receiver setting and observation times
 - d) FGDC's recommended receiver setting and observation times
25. **Operations made under a forest canopy may require longer**
- a) observation times than specified by the USGS
 - b) observation times than specified by the BLM
 - c) observation times than specified by the manufacturer
 - d) observation times than specified by the project manager
26. **Tripods used for GPS observations should be checked**
- a) for wood rot
 - b) slippage
 - c) for excessive temperature from the sun
 - d) All of the above
27. **The Cadastral Project Control network shall be established**
- a) by static survey methods
 - b) by fast-static survey methods
 - c) either a or b
 - d) None of the above

28. **The Cadastral Project Control network provides a framework**
- a) to reference the survey to a datum
 - b) to reference the survey to a mapping projection
 - c) to reference the survey to the NSRS
 - d) All of the above
29. **The Cadastral Project Control network allow flexibility for**
- a) fast static survey methods
 - b) kinematic survey methods
 - c) RTK survey methods
 - d) All of the above
30. **The number of stations in the Cadastral Project Control network**
- a) should be at least ten stations
 - b) should be at least twenty stations
 - c) should be at least thirty stations
 - d) depends on the project size, topography, and access
31. **All control and project information should be referenced**
- a) to NAD 27
 - b) to NAVD 88
 - c) to the most current national reference datum
 - d) None of the above
32. **All points in the Cadastral Project Control network should**
- a) be established by referencing to two USGS monuments
 - b) be established by referencing to two or more baselines
 - c) be established by referencing to four CORS stations
 - d) Any of the above
33. **All loops contained in the Cadastral Project Control network**
- a) should have a minimum of one baseline
 - b) should have a minimum of two baselines
 - c) should have a minimum of three baselines
 - d) should have a minimum of four baselines
34. **Baselines in the Cadastral Project Control network should have**
- a) a fixed integer double difference solution
 - b) adhere to the manufacturer's specifications for baselines
 - c) both a and b
 - d) None of the above

35. **All stations in the Cadastral Project Control network should**
- a) have one independent occupations
 - b) have two or more independent occupations
 - c) have three or more independent occupations
 - d) have four or more independent occupations
36. **The Cadastral Project Control network must be**
- a) a geometrically closed figure
 - b) may have single radial lines if surveyed with caution
 - c) may have side shots if surveyed with caution
 - d) All of the above
37. **Cadastral Measurements are the measurements used to define**
- a) the location of PLSS corners and boundaries
 - b) drainage areas
 - c) wildlife areas
 - d) erosion
38. **All points for Cadastral Measurements should be established**
- a) by one or more independent baselines
 - b) by two or more independent baselines
 - c) by three or more independent baselines
 - d) by four or more independent baselines
39. **All loops for Cadastral Measurements should be established**
- a) by one or more independent baselines
 - b) by two or more independent baselines
 - c) by three or more independent baselines
 - d) by four or more independent baselines
40. **Cadastral Measurements must be**
- a) a geometrically closed figure
 - b) may have single radial lines if surveyed with caution
 - c) may have side shots if surveyed with caution
 - d) All of the above
41. **An RTK survey includes**
- a) a system check
 - b) corner measurements
 - c) RTK calibrations and corner moves
 - d) All of the above

42. **The RTK system check is designed to check**
- a) the correct base station is occupied
 - b) the GPS height is correctly measured at the base and rover
 - c) the reference base stations have not been disturbed
 - d) All of the above
43. **Checking RMS values are within manufacturer's limits is**
- a) part of the RTK system check
 - b) part of daily procedures
 - c) part of weekly procedures
 - d) part of monthly procedures
44. **The optimal conditions for RTK surveys**
- a) is a clear sky
 - b) is low RMS
 - c) both a and b
 - d) None of the above
45. **Observation time for RTK should be set to account**
- a) for field conditions
 - b) for measurement methods
 - c) for the type of measurement checks being performed
 - d) All of the above
46. **The Cadastral Measurement Tolerance value of 8.6 cm is**
- a) derived from a least square adjustment
 - b) derived from standard error propagation relationships
 - c) derived from previous work
 - d) None of the above
47. **The baseline measurements to a found corner locations**
- a) shall be verified by a static survey
 - b) shall be verified by a fast-static survey
 - c) shall be verified by a RTK survey
 - d) Any of the above
48. **A check measurement from the same Cadastral Project Control**
- a) station should be at least 15 minutes after M1 and M2 are taken
 - b) station should be at least 25 minutes after M1 and M2 are taken
 - c) station should be at least 35 minutes after M1 and M2 are taken
 - d) station should be at least 45 minutes after M1 and M2 are taken

49. **The accuracy of points to be staked out with RTK will depend**
- a) on the accuracy of the redundancy
 - b) on the accuracy of the calibration
 - c) on the accuracy of the repeatability
 - d) Any of the above
50. **The quality of the calibration will be affected by the**
- a) accuracy of the GPS coordinates of the points
 - b) consistency of the GPS coordinates of the points
 - c) both a and b
 - d) None of the above
51. **The number of points that can be used in a calibration is**
- a) manufacturer and software dependent
 - b) survey company and software dependent
 - c) manufacturer dependent only
 - d) software dependent only
52. **Calibration points should be well distributed**
- a) around the project exterior
 - b) around the project interior
 - c) around the north edge of the project exterior
 - d) around the south edge of the project exterior
53. **When grid coordinates are used for RTK stakeout,**
- a) appropriate corrections for convergence are necessary
 - b) appropriate corrections for deviation are necessary
 - c) appropriate corrections for distance are necessary
 - d) All of the above
54. **Loss of satellite lock and initialization during an RTK**
- a) survey may be forced by touching the antenna
 - b) survey may be forced by inverting the rover antenna
 - c) survey may be forced by spinning the rover antenna
 - d) Any of the above
55. **Data analysis may be performed by**
- a) least squares
 - b) weighted mean average
 - c) both a and b
 - d) None of the above

56. **All data processing shall follow the**
- a) USGS's recommended procedures
 - b) BLM's recommended procedures
 - c) the manufacturer's recommended procedures
 - d) Any of the above
57. **The government stations used in the survey should include**
- a) a list of all HARN stations used
 - b) a list of all CORS stations used
 - c) a list of all reference stations
 - d) All of the above
58. **The coordinates of a station should show**
- a) the datum used
 - b) the geoid model used
 - c) the epoch and measurement units used
 - d) All of the above
59. **The horizontal distance measured at the mean elevation**
- a) between two points is the ground distance
 - b) between two points is the grid distance
 - c) between two points is the geodetic distance
 - d) None of the above
60. **The National Spatial Reference System is managed by**
- a) the state highway department
 - b) the National Geodetic Survey
 - c) both a and b
 - d) the USGS

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