1. Neat cement caps and high-strength gypsum-plaster shall be formed against a glass plate at least _______ in. thick, a machined metal plate at least _______ in. thick, or a polished plate of granite or diabase at least _______ in. thick. (Section 4.1)

2. The recessed area which receives molten sulfur shall not be deeper than _______ in. (Section 4.1)

3. In all cases, plates shall be at least _______ in. greater in diameter than the test specimen and the working surfaces shall not depart from a plane by more than _______ in. _______ inches. (Section 4.1)

4. Guide bars or bull's-eye levels, shall be used in conjunction with capping plates to ensure that no single cap will depart from perpendicularity by more than ____________. (Section 4.2)

5. Pots used for melting sulfur mortars shall be equipped with ______________ and shall be made of metal or lined with a material that is non-reactive with sulfur mortar. (Section 4.3)

6. The flash point of sulfur is approximately _______ °F therefore heating over an open flame is dangerous. (Section 4.3.1.1)

7. Use sulfur melting pots in a ________ to exhaust the fumes to the outdoors. (Section 4.3.1.1)

8. The compressive strength of capping materials shall be determined using _______ in. cubes. (Section 5.1.3)

9. The strength of capping material shall be determined on receipt of a new lot and at intervals not exceeding ______________ months. (Section 5.1.4)

10. Qualification tests of neat hydraulic cement paste are used to establish the effects of the ___________ - ___________ ________. (Section 5.2.1)

11. Mix the neat cement gypsum paste at the desired water-cement ratio and use it ______________ since it sets ______________. (Section 5.3.2)
12. Laboratory prepared sulfur mortars are permitted if allowed to harden a minimum of _______ hours before testing concrete with strength less than _________ psi. (Section 5.4.1)

13. Sulfur mortar must be allowed to harden a minimum of _______ hours before testing concrete strengths of _________ psi or greater. (Section 5.4.1)

14. Use only ________ __________ _______ __________ to cap freshly molded cylinders. (Section 6.1)

15. Capping plates may be coated with a thin layer of ____________ ______ or __________ to prevent the capping material from adhering to the surface of the plate. (Section 6.2.1)

16. The distance of any point on the end of a hardened cylinder shall not exceed _______ in. from a plane that passes through the highest point and that is perpendicular to the axis of the cylinder. (Section 6.2.2)

17. Prepare sulfur mortar for use in capping by heating to a temperature between _______ and _________ °F. (Section 6.2.4)

18. Empty the pot and recharge with fresh material to ensure that the oldest material in the pot has not been used more than _________ times. (Section 6.2.4)

19. It is not permitted to reuse recovered capping compound when capping cylinders with a compressive strength of _________ psi or greater. (Section 6.2.4)

20. Check the temperature at approximately__________ intervals during capping. (Section 6.2.4)

21. The capping plate or device shall be warmed before use to _______ _____ _______ ______ _______ and _______ _______ _______ _______ ______. (Section 6.2.4)

22. The ends of moist cured specimens shall be dry enough to preclude the formation of steam or foam pockets larger than ________ in. in diameter. (Section 6.2.4)

23. During each day’s capping operation, check the ________________ on at least _____ specimens prior to compression testing. (Section 6.2.5.1)

24. Planeness of the sulfur caps shall be determined by making a minimum of _______ measurements across three ________________ to ensure that the surface of the caps do not depart from a plane by more than _____________ in. (Section 6.2.5.1)
25. During each day of compression testing, check the ____________ of caps on at least ______ specimens. (Section 6.2.5.2)

26. To check cap thickness, after completing the compression test, recover at least ______________ pieces of the capping material from the selected specimen and measure and record the thickness to the nearest _________ in. (Section 6.2.5.2)

**ASTM C 1231 – USE OF UNBONDED CAPS IN DETERMINATION OF COMPRRESSIVE STRENGTH OF HARDENED CONCRETE SPECIMENS**

27. Use of unbonded caps below __________ psi or above __________ psi is not permitted. (Section 1.2)

28. Pads shall be _____ + ____ in. thick and the diameter shall not be more than ______ in. smaller than the inside diameter of the ring. (Section 5.2.1)

29. Pads shall be made from ________________________. (Section 5.2.2)

30. Elastomeric pads shall be supplied with the following information:_________________ ____________ (Section 5.2.4.1)
                ___________________ ______ __________________________. (Section 5.2.4.2)
                _________________________________. (Section 5.2.4.3)

31. The user shall maintain a record indicating the date the pads are _______ _______ ____________, _______ _______________, and ______________ ____ _____________. (Section 5.2.5)

32. The height of the retaining ring shall be ____________ in. (Section 5.3)

33. The inside diameter of the retaining ring shall not be less than ________ % or greater than ____________ % of the diameter of the cylinder. (Section 5.3)

34. The surface of the base plate of the retainer, that contacts the machine bearing block, shall be plane to within _________ in. (Section 5.3)

35. On the ends of a cylinder to be tested, depressions under a straight edge, measured with a round wire gage shall not exceed ____________ in. (Section 6.2)

36. For an anticipated cylinder strength of 3500 psi, the correct pad durometer used could be _______ or _______. (Table 1)
37. The maximum number of reuses allowed on a neoprene pad durometer of 70 that will be testing concrete in the range of 4000 to 7000 psi is ___________. (Table 1)

38. Replace pads that do not meet the dimensional requirements of Section 5.2 or that exceed the maximum number of reuses found in ____________. (Section 7.2)

39. Complete testing of unbonded capped specimens according to Test Method ___________. (Section 7.3)

40. When tests are to be made to establish a permissible number of reuses exceeding those in Table 1, only those reuses which are within ___________ psi of the highest strength level to be qualified will be included in reuse count. (Section 8.4.2)

41. When testing for qualification or pad reuse, a minimum of ______ _______ of cylinders shall be made at the __________ and __________ strength levels desired or anticipated. (Section 8.5.2)

**ASTM C 39 – COMPRRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

42. This test method is limited to concretes with a unit weight in excess of __________ lb/ft³. (Section 1.1)

43. The results of this test method are used as a basis for __________ ____________ of concrete proportioning, ___________, and placing operations. (Section 5.3)

44. Testing machines must be verified as follows:

   - Within _______ months of last calibration (Section 6.1.1.1),
   - On original ________________ or immediately after relocation (Section 6.1.1.2),
   - Immediately after making _____________ or _______________ (Section 6.1.1.3),
   - Whenever there is a reason to suspect the ________________ of the indicated loads. (Section 6.1.1.4)

45. When checking for accuracy, the percentage of error for loads within the proposed range of the testing machine, shall not exceed __________ % of the indicated load. (Section 6.1.3.1)

46. The report on the ________________ of the testing machine shall state within what ________________ range it was found to conform. (Section 6.1.3.4)
47. Bearing faces shall have dimensions at least ___________% greater than the nominal diameter of the specimen. (Section 6.2.2)

48. Except for the concentric circles, the bearing faces of the testing machine shall not depart from a plane by more than _______ in. (Section 6.2.3)

49. The upper bearing block shall be __________ _____________ and the center of the sphere shall coincide with the center of the bearing face within _________ % of the radius of the sphere. (Section 6.2.4.1)

50. The maximum diameter of the bearing face of the suspended spherically seated block shall not exceed __________ inches for a 6 inch diameter test specimen. (Section 6.2.4.6)

51. For a specimen that is ________ inches in diameter, the maximum diameter of the bearing face of the suspended spherically seated block shall not exceed 6.5 inches. (Section 6.2.4.6)

52. At least every ______ months, or as specified by the manufacturer, clean and lubricate the curved surface of the socket and of the spherical portion of the machine. (Section 6.2.4.8)

53. The lower bearing block shall be at least _______in. thick when new, and _____ in. after any resurfacing. (Section 6.2.5.3)

54. If spacers are used, the spacers shall be placed under the __________ bearing block and shall be made of ____________ ____________. (Section 6.3 & 6.3.1)

55. If the load of a compression machine used in concrete testing is registered on a dial, the dial shall be equipped with a graduated scale that is readable to the nearest __________ % of the full scale load. (Section 6.4.3)

56. If the testing machine load is indicated in digital form, the numerical increment shall not exceed __________ % of the full scale load of a given loading range. (Section 6.4.4)

57. Specimens shall not be tested if any individual diameter of a cylinder differs from any other diameter of the same cylinder by more than __________ %_. (Section 7.1)

58. Prior to testing, neither end of the test specimen shall depart from perpendicularity to the axis by more than __________ °. (Section 7.2)
59. Any end of a test specimen that is not plane to within _________ in. shall be
______________ or ground to meet that tolerance or ________________. (Section
7.2)

60. The diameter used for calculating the cross-sectional area of the specimen, shall be
determined to the nearest ___________ in. by averaging two diameters measured at
_______ ___________ to each other at about the midheight of the specimen. (Section
7.2)

61. The number of individual cylinders measured to be used for determining average
diameter is not prohibited from being reduced to one for each _____ or _____ per day,
whichever is greater, provided they are from a single lot of molds and consistently
produce average diameters within a range of _____ in. (Section 7.3)

62. If the purchaser requests a density measurement, the length of the specimen is
measured to the nearest _____ in. at _______ locations spaced evenly around the
specimen circumference. (Section 7.4.1)

63. Test specimens shall be tested in a ______________ condition. (Section 8.2)

64. The permissible time tolerance on a specimen that is to be tested at 28 days is _______
hours. (Section 8.3)

65. Wipe clean the ____________ ____________ of the upper and lower bearing blocks,
spacers if used, and of the specimen. (Section 8.4)

66. Align the axis of the specimen with the ___________ of ___________ of the upper
block. (Section 8.4)

67. Prior to testing, verify that the load indicator is set to _____. (Section 8.4.1)

68. Prior to applying the load on the specimen, _____ the movable head of the
______________ _____________ _________ gently by hand so that it appears parallel
to the top of the test specimen. (Section 8.4.1)

69. If using unbonded caps, after application of the load, but before reaching _______% of
the anticipated specimen strength, check to see that the axis of the cylinder does not
depart from vertical by more than __________°. (Section 8.4.2)

70. The load applied shall be at a rate of movement corresponding to a stress rate on the
specimen of _________________ psi/s. (8.5.1)
71. During application of the first half of the anticipated loading phase, a _________ rate of loading shall be permitted. (Section 8.5.2)

72. When specimen has a length to diameter ratio of 1.50, a correction factor of _________ will be multiplied by the compressive strength results. (Section 9.2)

73. Report the _________ number, average measured _________, and maximum _________. Report the compressive strength to the nearest _________ psi and note the type of ___________. Report the ______ of specimen at time of testing. (Section 10.1. through 10.1.9)

74. The ratio of the horizontal distance between the point of application of the load and the point of application of the nearest reaction to the depth of beam measured shall be _______________ (Section 5.2.2)

75. The load applying and support blocks should not be more than _________ in. high, measured from the center of the axis or pivot. (Section 5.2.3)

76. The test specimen shall have a test span within __________% of being three times the depth as tested. (Section 6.1)

77. Surface drying of the specimen before testing will result in a __________________ of the measured flexural strength. (Section 7.1, Note 3)

78. When testing molded specimens, turn the specimen on its____________ with respect to its position as molded. (Section 7.2)

79. Apply between _____and______ % of the estimated load before checking the specimen for gaps with the feeler gages. (Section 7.2)

80. When checking for gaps, if there is a gap greater than ______ in. over a length of ______ inch but less than _______ in. over a length of one inch, then the specimen may be __________, ____________, or ___________. (Section 7.2)

81. If leather shims are to be used to eliminate gaps, they must be a uniform _________ in. thickness and shall extend across the ________ width of the specimen. (Section 7.2)
82. If there is a gap that is greater than the _______ in. feeler gage over an inch, the only acceptable methods to eliminate the gap is by ______________ or ______________. (Section 7.2)

83. The load shall be applied at a constant rate to increase the maximum stress on the tension face between ______ and ______ psi/min. (Section 7.3)

84. The specimen shall be loaded ____________ and ______________ ___________. (Section 7.3)

85. To determine the dimensions of the specimen after completion of testing, take _______ measurements across the width and depth to the nearest _______ in. and average. (Section 8.1)