4.126. Diurnal variation of magnetic declination is
  (a) greater at equator than nearer the poles
  (b) less at equator than nearer the poles
  (c) less in summer than in winter
  (d) same at all latitudes and during different months.

4.145. Removal of parallax, may be achieved by focussing
  (a) the objective
  (b) the eye-piece
  (c) the objective and the eye-piece
  (d) none of these.

4.148. Under ordinary conditions, the precision of a theodolite traverse is affected by
  (a) systematic angular errors
  (b) accidental linear errors
  (c) systematic linear errors
  (d) accidental angular errors.

4.152. The most reliable method of plotting a theodolite traverse, is
  (a) by consecutive co-ordinates of each station
  (b) by independent co-ordinates of each station
  (c) by plotting included angles and scaling off each traverse leg
  (d) by the tangent method of plotting.

4.153. The orthographical projection of a traverse leg upon the reference meridian, is known as
  (a) departure of leg   (b) latitude to the leg
  (c) co-ordinate of the leg   (d) bearing of the leg.

4.162. The method generally preferred to for contouring an undulating area, is
(a) chain surveying
(b) plane table surveying
(c) tacheometrical surveying
(d) compass surveying.

4.170. If a tacheometer is fitted with an anallatic lens
(a) additive constant is 100, multiplying constant is zero
(b) multiplying constant is 100, additive constant is zero
(c) both multiplying and additive constants are 100
(d) both multiplying and additive constants are 50.

4.171. In tacheometrical observations, vertical staff holding is generally preferred to normal staffing, due to
(a) ease of reduction of observations
(b) facility of holding
(c) minimum effect of careless holding on the result
(d) none of these.

4.183. The radius of a simple circular curve is 300 m and length of its specified chord is 30 m. The degree of the curve is
(a) 5.73°
(b) 5.37°
(c) 3.57°
(d) 3.75°.

4.187. If Δ is the angle of deflection of a simple curve of radius R, the length of its long chord, is
(a) $R \cos \dfrac{\Delta}{2}$
(b) $2R \cos \dfrac{\Delta}{2}$
(c) $R \sin \dfrac{\Delta}{2}$
(d) $2R \sin \dfrac{\Delta}{2}$.

13.4. A concrete having a slump of 6.5 cm, is said to be
(a) dry
(b) earth moist
(c) semi-plastic
(d) plastic
(e) none of these.

13.5. Concrete is unsuitable for compaction by a vibrator if it is

(a) dry

(b) earth moist

(c) semi-plastic

(d) plastic

(e) none of these.

13.6. The entrained air in concrete

(a) increases workability

(b) decreases workability

(c) decreases resistance to weathering

(d) increases strength

(e) neither affects workability nor strength.

13.11. Separation of coarse aggregates from mortar during transportation, is known

(a) bleeding

(b) creeping

(c) segregation

(d) shrinkage

(e) none of these.

13.15. Pick up the incorrect statement from the following :

(a) Admixtures accelerate hydration

(b) Admixtures make concrete water proof

(c) Admixtures make concrete acid proof

(d) Admixtures give high strength

(e) None of these.

13.17. To obtain cement dry powder, lime stones and shales or their slurry, is burnt in a rotary kiln at a temperature between

(a) 1100° and 1200°C

(b) 1200° and 1300°C

(c) 1300° and 1400°C

(d) 1400° and 1500°C

(e) 1500° and 1600°C.

13.20. Pick up the correct proportions of chemical ingredients of cement

(a) Lime : Silica : Alumina : Iron oxide : 63 : 22 : 6 : 3

(b) Silica : Lime : Alumina : Iron oxide : 63 : 22 : 6 : 3

(c) Alumina : Silica : Lime : Iron oxide : 63 : 22 : 6 : 3

(d) Iron oxide : Alumina : Silica : Lime : 63 : 22 : 6 : 3.

13.24. Di-calcium silicate (C_2S)

(a) hydrates rapidly

(b) generates less heat of hydration

(c) hardens rapidly

(d) provides less ultimate strength to cement

(e) has less resistance to sulphate attack.

13.29. The high strength of rapid hardening cement at early stage, is due to its

(a) finer grinding

(b) burning at high temperature

(c) increased lime cement

(d) higher content of tricalcium.

13.38. The diameter of the Vicat plunger is 10 mm and its length varies from

(a) 20 mm to 30 mm   (b) 30 mm to 40 mm

(c) 40 mm to 50 mm   (d) 50 mm to 60 mm

(e) none of these.

17.57. If V is speed of a moving vehicle, r is radius of the curve, g is the acceleration due to gravity, W is the width of the carriageway, the super elevation is

(a) $\dfrac{WV}{gr}$

(b) $\dfrac{W^2V}{gr}$

(c) $\dfrac{WV^2}{gr}$

(d) $\dfrac{WV}{gr^2}$

17.59. For a comfortable travel on Highways, the centrifugal ratio should not exceed

(a) 0.10

(b) 0.15

(c) 0.20

(d) 0.25

(e) 0.30.

17.68. The distance travelled by a moving vehicle during perception and brake reaction times, is known as

(a) sight distance

(b) stopping distance

(c) lag distance

(d) none of these.

17.74. The type of curves generally provided on highways, is

(a) critical curve

(b) transition curve

(c) vertical curve

(d) all the above.

17.76. The ideal shape of a transition curve, is

(a) clothoid

(b) cubic spiral

(c) cubic parabola

(d) lamniscate

(e) none of these.

16.37. Lacy's regime condition is obtained if

(a) silt grade in the channel is variable

(b) discharge in the channel is variable

(c) silt charge in the channel is variable

(d) channel flows in unlimited, incoherent alluvium of the same character as that transported material.

16.40. The Lacey's regime velocity is proportional to
(a) $R^{1/2} S^{3/4}$
(b) $Q^{3/4} S^{1/3}$
(c) $R^{3/4} S^{1/3}$
(d) $R^{2/3} S^{1/2}$.

16.41. According to Lacey, in regime conditions
(a) silt is kept in suspension by vertical components of eddies
(b) entire cross-section of the channel is generated at all points by the forces normal to the wetted perimeter
(c) both (a) and (b)
(d) neither (a) nor (b).

16.70. An outlet which maintains a constant discharge irrespective of fluctuation in the water levels of the supplying channel or water course, is known as
(a) non-modular outlet
(b) semi-modular outlet
(c) flexible modular outlet
(d) right modular outlet.

16.71. The ratio of the rate of change of discharge of an outlet and parent channel, is known as
(a) efficiency
(b) sensitivity
(c) flexibility
(d) modular limit.