

3.46 Surveying

3.48 Surveying

3.50 Surveying

179. In a spherical trigangle ABC, the relation holds is

$$(a) \tan \frac{(A - B)}{2} = \frac{\sin \frac{(a - b)}{2}}{\sin \frac{(a + b)}{2}} \tan \frac{C}{2}$$

$$(b) \tan \frac{(A + B)}{2} = \frac{\cos \frac{(a - b)}{2}}{\cos \frac{(a + b)}{2}} \cos \frac{C}{2}$$

$$(c) \tan \frac{(A - B)}{2} = \frac{\sin \frac{(a - b)}{2}}{\cos \frac{(a + b)}{2}} \tan \frac{C}{2}$$

(d) none of these

180. For triangulation a well conditioned triangle is isosceles triangle whose base angles are

- (a) 45° each
- (b) $56^\circ 14'$ each
- (c) 60° each
- (d) 75° each.

181. According to Napiers rule for a right angled triangle the sine of middle part equals to the product of

- (a) sines of the two adjacent parts
- (b) tangents of the two adjacent parts
- (c) cosine of the two adjacent parts
- (d) both (a) and (b) above.

182. If 'S' is the sum of three angles of a spherical triangle, then the spherical axis will be equal to

- (a) $S - 90^\circ$
- (b) $8 - 180^\circ$
- (c) $S - 270^\circ$
- (d) none of the above.

183. Accuracy of triangulation is given by

$$(a) m = \frac{\Sigma E^2}{3n} \sec \quad (b) m = \sqrt{\frac{\Sigma E^2}{3n}}$$

$$(c) m = \sqrt{\frac{\Sigma E^2}{n}} \quad (d) \text{None of the above.}$$

Where ΣE^2 = sum of the square of the triangular errors in triangulation series n = total number of triangles in triangulation series.

184. In selection of site for base line, the most important factor is

- (a) sides should be such that well shaped triangles can be obtained while connecting the end station to the stations of main triangulation
- (b) the ground at the site should be fairly level or uniformly sloping
- (c) the ground should be firm and smooth
- (d) all of the above.

185. Limiting gradient for locating the baseline on evenly sloping ground is

- (a) 1 in 6
- (b) 1 in 9
- (c) 1 in 12
- (d) 1 in 15

186. The station which is selected close to the main station to avoid intervening obstruction is known as

- (a) satellite station
- (b) pivot station
- (c) subsidiary station
- (d) none of the above.

187. If R is radius of the earth and α° is the central angle, then side of a spherical triangle is given by

$$(a) a = \frac{\pi R \alpha^\circ}{90^\circ} \quad (b) a = \frac{\pi R \alpha^\circ}{180^\circ}$$

$$(c) a = \frac{\pi R \alpha^\circ}{270^\circ} \quad (d) a = \frac{\pi R \alpha^\circ}{360^\circ}$$

188. The correction applied to base line having negative sign is

- (a) reduction to mean sea level
- (b) correction for horizontal alignment
- (c) correction for sag and slope correction
- (d) all of the above

189. The geometrical condition for triangulation adjustment is the

- (a) sum of angles around a station should be 360°
- (b) sum of three angles of a plane triangle should be 180°
- (c) eight angles of a braced quadrilateral should be 360°
- (d) all of the above.

190. The longitude of a place is

- (a) the angular distance between the meridian of the place and the standard meridian
- (b) the angular distance between the meridian of the place and the international date line.
- (c) the area of the great circle which passes through the place and is perpendicular to the equator.
- (d) none of the above.

191. The international date line is located along

- (a) standard meridian
- (b) equator
- (c) 90° longitude
- (d) 180° longitude.

192. If the equatorial distance between two meridians is 100 km, then the distance at 60° latitude will be

- (a) 1000 km
- (b) 1200 km
- (c) 600 km
- (d) 1500 km

3.52 Surveying

- 211.** The circle in which a plane passing through the point of observation and tangential to the earth's surface intersects with celestial sphere is
(a) sensible horizon (b) visible horizon
(c) true horizon (d) none of the above.
- 212.** The great circle of celestial sphere passing through the Zenith and Nadir is called
(a) prime vertical (b) observer's meridian
(c) vertical circle (d) All of the above.
- 213.** Observer's meridian is
(a) a vertical circle
(b) a circle which passes through zenith, Nadir and the poles
(c) both (a) and (b) above
(d) none of the above.
- 214.** The angle between the zenith and the celestial equator is called
(a) latitude (b) co-latitude
(c) longitude (d) none of the above.
- 215.** The longitude of a place is
(a) the angle between a fixed reference meridian called the prime meridian and meridian of a place
(b) the angular distance between any two meridians
(c) maximum at Greenwich
(d) none of the above.
- 216.** Declination circle is
(a) great circle passing through heavenly body and celestial poles
(b) the hour circle of the body
(c) both (a) and (b) above
(d) none of the above
- 217.** The angle between the observer's meridian and the declination circle passing through the body is called
(a) Right ascension
(b) Hour angle
(c) Azimuth
(d) Declination.
- 218.** The commencement of spring is marked by
(a) the change in sun's declination from north to south
(b) the change in sun's declination from south to north
(c) the change in sun's hour angle
(d) none of the above.
- 219.** Autumnal equinox or first point of libra is the point in which the sun's declination changes from
(a) south to west (b) north to south
(c) north to east (d) none of the above.
- 220.** The plane of ecliptic is inclined to the plane to equator at an angle called angle of obliquity, the value of this angle is
(a) $23^{\circ} 55'$ (b) $22^{\circ} 47'$
(c) $23^{\circ} 47'$ (d) $23^{\circ} 27'$
- 221.** The point at which the south declination of sun is maximum in southern hemisphere is
(a) Winter solstice (b) Summer solstice
(c) Autumnal solstice (d) None of the above.
- 222.** The east and west points are
(a) extremities of east west line, which is the line in which the prime vertical meets the horizon
(b) extremities of meridian line, which is the line in which observer's meridian meets horizontal plane
(c) both (a) and (b) above
(d) none of the above.
- 223.** The position of a celestion body can be specified by a system of co-ordinates which is independent of the position of observer, the system is known as
(a) celestial system
(b) dependent equatorial system
(c) horizon system
(d) independent equatorial system.
- 224.** They system used in specifying position of body and also used in publication of star catalogues, almanacs etc. is
(a) Horizon system
(b) Celestial system
(c) Dependent equatorial
(d) Independent ecmatorial system.
- 225.** The co-ordinate and the great circle of reference for this system are
(a) right ascension, azimuth and equatorial circle, declination circle respectively
(b) right ascension, hour angle and equatorial circle, declination circle respectively
(c) right ascension, declination and equatorial circle, declination circle respectively
(d) none of the above.

3.54 Surveying

