

- Q1) Most probable value of a quantity
- (A) always increases with increase in True value
 - (B) always decreases with decrease in True value
 - (C) is always equal to True value
 - (D) is nearest to True value

Q2) Identify the error, which has all the following characteristics:

- (i) Caused by observer's misunderstanding and carelessness
- (ii) Reading an angle counter-clockwise, but recording it as clockwise angle
- (iii) Sighting the wrong target
- (iv) Poor judgement by the observer

- (A) Mistake
- (B) Cumulative error
- (C) Probable error
- (D) Accidental error

Q3) Electromagnetic Spectrum can be broadly divided as (in order of increasing wavelength)

- (A) X-rays, Gamma rays, Infrared, Ultraviolet, Visible, Radiowave, Microwave
- (B) Gamma rays, X-rays, Radiowave, Microwave, Ultraviolet, Infrared, Visible
- (C) X-rays, Gamma rays, Microwave, Radiowave, Ultraviolet, Infrared, Visible
- (D) Gamma rays, X-rays, Ultraviolet, Visible, Infrared, Microwave, Radiowave

Q4) Spectral signature of an object in a satellite image does NOT depend on the

- (A) season of the year
- (B) wavelength of electromagnetic spectrum
- (C) swath width of the satellite
- (D) reflectance value from the object

Q5) Component of GPS signal that gets deciphered by all types of GPS receivers is

- (A) Coarse-Acquisition code
- (B) Precision code
- (C) Link-1 frequency
- (D) Link-2C frequency

Q6) For 3D-positioning, Global Navigational Satellite System (GNSS) requires a minimum of _____ satellites.

- (A) 3
- (B) 4

- (C) 5
- (D) 2

Q7) Basic objective of NAVSTAR GPS is to provide services for

- (A) Positioning, Velocity and Timing
- (B) Positioning, Navigation and Timing
- (C) Velocity, Navigation and Timing
- (D) Positioning, Velocity and Navigation

Q8) A satellite image with 6-bit radiometric resolution has _____ gray levels.

- (A) 16
- (B) 32
- (C) 64
- (D) 128

Q9) Thermal Infrared images are provided by

- (A) LANDSAT MSS and IRS LISS-II sensors
- (B) SPOT and CARTOSAT
- (C) IKONOS and QUICKBIRD
- (D) LANDSAT TM and NOAA AVHRR sensors

Q10) Which of the following gets mitigated in DGPS positioning?

- (A) Atmospheric error
- (B) Multi-path error
- (C) Cycle-slip error
- (D) Topographic error

Q11) In GIS database, which type of attribute may be used to represent area?

- (A) Nominal
- (B) Interval
- (C) Ratio
- (D) Ordinal

Q12) What is attribute uncertainty?

- (A) Error due to imprecision in coordinate registration
- (B) Error due to incorrect labelling or quantification of features
- (C) Error in the source document due to cartographic bias
- (D) Error associated with displacement of the object from its true location

Q13) In GIS, _____ triangulation is a proximal method that satisfies the requirement that a circle drawn through the three nodes of a triangle contains no other node.

- (A) Dalhousie
- (B) Delaunay
- (C) David
- (D) Davenport

Q14) In GIS, reclassification is performed to

- (A) group ranges of values into a single value within a data layer
- (B) segment a data layer into multiple data layers
- (C) combine multiple data layers to a single data layer
- (D) classify a data layer using many attributes

Q15) The internal angles P, Q, R of a triangle are observed in degree minute second ($^{\circ} ' ''$) using a Total Station. The angles along with their probable errors are given below.

$$P = 40^{\circ} 30' 01'' \pm 02''$$

$$Q = 60^{\circ} 00' 02'' \pm 03''$$

$$R = 79^{\circ} 30' 05'' \pm 04''$$

The corrected values of the angles P, Q and R are

(A) $P = 40^{\circ} 30' 01''$, $Q = 60^{\circ} 00' 02''$, $R = 79^{\circ} 30' 05''$

(B) $P = 40^{\circ} 29' 59.6''$, $Q = 59^{\circ} 59' 59.5''$, $R = 79^{\circ} 30' 0.9''$

(C) $P = 40^{\circ} 29' 59.9''$, $Q = 59^{\circ} 59' 59.5''$, $R = 79^{\circ} 30' 0.6''$

(D) $P = 40^{\circ} 29' 59''$, $Q = 59^{\circ} 59' 59''$, $R = 79^{\circ} 30' 02''$

Q16) How many number of cells of a 30 m spatial resolution DEM would be required to cover a 1:50,000 topographic map of Survey of India, assuming that 1 minute = 1.85 km?

- (A) 855,625
- (B) 855,525
- (C) 855,425
- (D) 855,325

Q17) Choose the CORRECT statement(s)

- (A) True Color Composite is produced by superimposing Red band in Red, Green band in Green, and Blue band in Blue colour.
- (B) True Color Composite is produced by superimposing Blue band in Red, Green band in Green, and Red band in Blue colour.

(C) Standard False Color Composite is produced by superimposing Near Infrared band in Red, Red band in Green, and Green band in Blue colour.

(D) Standard False Color Composite is produced by superimposing Green band in Red, Green band in Green, and Near Infrared band in Blue colour.

Q18) Choose the CORRECT statement(s) in case of visual image interpretation.

(A) Tone/Color is a primary element while Size, Shape and Texture are secondary elements.

(B) Size, Shape and Texture are primary elements while Tone/Color is a secondary element.

(C) Texture refers to the frequency of tonal changes in an area of image.

(D) Tone/Color is a primary element while Pattern and Association are secondary elements.

Q19) The spatial resolution of a satellite image P is 80 m and another satellite image Q is 20 m; each of 512×512 pixel size. Choose the CORRECT option(s).

(A) Image P will cover four times the area of image Q.

(B) Image P will cover sixteen times the area of image Q.

(C) Minor details will be more clear in image Q as compared to image P.

(D) Image P is higher resolution and image Q is lower resolution.

Q20) Which statement(s) is/are CORRECT for Hyperspectral images?

(A) Bandwidth is large.

(B) Bandwidth is narrow.

(C) Number of bands are more.

(D) Bands are contiguous.

Q21) Satellite-Based NAVSTAR GPS Augmentation System(s) is/are

(A) EGNOS

(B) WAAS

(C) GAGAN

(D) DGPS

Q22) Identify the CORRECT statement(s)

(A) NAVSTAR GPS consists of minimum 24 satellites.

(B) Precision of GPS positioning is being defined by its standard deviation.

(C) DGPS method provides more accurate 3D-position than Relative Static postprocessing method.

(D) GPS observations from geodetic GPS receiver provide less accurate position than GPS code receiver.

Q23) Identify the CORRECT statement(s).

- (A) For accurate GPS positioning, Geometric Dilution of Precision should be as large as possible.
- (B) Integer ambiguity is associated with carrier frequency observation of GPS signal.
- (C) GPS is one way ranging system for user.
- (D) GPS is two way ranging system for user.

Q24) During GPS Surveying, initialization of rover receiver is required for

- (A) Relative Static method
- (B) Relative Kinematic method
- (C) Stop and Go method
- (D) Kinematic On Fly method

Q25) Centroid of a polygon is

- (A) geometric centre of the polygon.
- (B) arithmetic mean position of all its vertices in two coordinate directions.
- (C) the point at which a cutout of the polygon could be perfectly balanced on the tip of a pin.
- (D) centre of polyline.

Q26) The area of a buffer of 50 m around a proposed 1 km straight road segment to restrict any future construction is _____ sq. m. (in integer).
(Take the value of $\pi = 3.14$)

Q27) The Degree of Accuracy of a traverse having error of closure of 0.5 m and perimeter of 100 m is _____ (round off to 3 decimal places).

Q28) If population variance is 14.8, sample variance is 15.4 and the number of degrees of freedom is 10, then Chi-square value is _____ (round off to 2 decimal places)

Q29) Height of a station determined by Global Navigational Satellite System (GNSS) is 284.097 m and the geoid height of the station is -30.052 m. The elevation of the station is _____ m (round off to 3 decimal places).

Q30) Number of cells required to cover an area of 9 sq. km of ASTER-GDEM are _____ (in integer).

Q31) If a 1:50,000 scale map is digitised to an accuracy of ± 0.5 mm, the level of error that might be expected in ground is \pm _____ m (in integer).

Q32) The main principle of Surveying is to work from

- (A) whole to part
- (B) part to whole
- (C) higher elevation to lower elevation
- (D) lower elevation to higher elevation

Q33) The type of survey carried out to define the property boundaries for transfer of land property is called

- (A) city survey
- (B) cadastral survey
- (C) municipality survey
- (D) geodetic survey

Q34) Departure of a line of a traverse is obtained by multiplying its length by the _____ of the reduced bearing of the line.

- (A) Sine
- (B) Cosine
- (C) Tangent
- (D) Cotangent

Q35) The camera axis of an aerial camera is defined as

- (A) the line joining the optical centres of the objective and eyepiece lens.
- (B) the perpendicular line between the photographic centre and optical centre of the objective lens.
- (C) the line passing through the centre of the camera lens and perpendicular to the camera plane and the photo plane.
- (D) the line perpendicular to the plumb line.

Q36) Select the INCORRECT statement:

- (A) Scale of a tilted photograph is uniform throughout its extent.
- (B) The relief displacement of any point will be radial from nadir point of the tilted photograph.
- (C) The bisector of the angle of tilt intersects the tilted photograph at a point known as isocenter.
- (D) A line perpendicular to the principal line and passing through the isocenter is known as the axis of tilt.

Q37) A topographic map prepared by Survey of India covers 1 degree by 1 degree area on a single map. The minimum ground distance which can be represented on this map is _____ m (round off to 2 decimal places).

Q38) In surveying, an odometer is used for measuring

- (A) azimuth
- (B) horizontal angle
- (C) vertical angle
- (D) distance

Q39) Choose the CORRECT statements(s).

- (A) The spheroid is a mathematical surface of the Earth.
- (B) Geoid is an equipotential reference surface of the Earth.
- (C) True shape of the Earth is perfect spheroid.
- (D) The WGS-84 datum varies from country to country.

Q40) Choose the CORRECT statement(s).

- (A) Latitude of a place varies from 0 degree to 90 degree North or South, and Longitude varies from 0 degree to 180 degree East or West of Greenwich Meridian.
- (B) Latitude of a place varies from 0 degree to 180 degree East or West of Greenwich Meridian, and Longitude varies from 0 degree to 90 degree North or South.
- (C) Longitude of a point is the angle between the Greenwich Meridian and the meridian passing through that point.
- (D) Latitude and Longitude of a place are subject to change with time.

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