

Unit 4 - Week 2: Coordinate System and Reference Frame & Time and Astronomy

Course outline

How does an NPTEL online course work?

Week 0: Prerequisite

Week 1: Introduction to Higher Surveying and Coordinate System & Reference Frame

Week 2: Coordinate System and Reference Frame & Time and Astronomy

- Lec 1: Projected coordinate system
- Lec 2: Fundamentals of astronomy
- Lec 3: Applications of concepts of astronomy
- Quiz : Assignment 2
- Weekly feedback form for week 2
- Assignment 2: solutions

Week 3: Time and Astronomy & Error, Accuracy, and Adjustments Computations

Week 4: Error, Accuracy, and Adjustments Computations

Week 5: Error, Accuracy, and Adjustments Computations, GPS & Photogrammetry

Week 6: Photogrammetry

Week 7: Photogrammetry

Week 8: Photogrammetry & LIDAR (LIDARgrammetry)

Week 9: RADAR (RADARgrammetry)

Week 10: RADAR (RADARgrammetry)

Week 11: RADAR (RADARgrammetry) & Hydrographic Survey

Week 12: Hydrographic Survey & Navigation

Download Videos

Assignment 2

The due date for submitting this assignment has passed. **Due on 2020-02-12, 23:59 IST.**
 As per our records you have not submitted this assignment.

- Read following two statements about Georeferencing and choose the correct option. Statement 1: Georeferencing assigns the coordinates of points in map to corresponding points in image. Statement 2: Georeferencing relates the map coordinate system to the geographic coordinate system.
 - Both statement 1 and statement 2 are true
 - Statement 1 is true and statement 2 is false
 - Statement 1 is false and statement 1 is true
 - Both statement 1 and statement 2 are false

No, the answer is incorrect. Score: 0
 Accepted Answers:
 b. Statement 1 is true and statement 2 is false
- A country is of rectangular shape and is described between 81° N to 23° N and 63° E to 67° E, then what kind of projection system will you suggest for this country?
 - LCC projection
 - Stereographic projection
 - Gnomonic projection
 - Polyconic projection

No, the answer is incorrect. Score: 0
 Accepted Answers:
 b. Stereographic projection
- If a person moves along the central meridian from 21° N to 25° N latitude along the shortest possible path, which of the following projection will he use for mapping the path such that exact distance is reflected on the map?
 - Gnomonic projection
 - Transverse Mercator projection
 - Stereoscopic projection
 - LCC projection

No, the answer is incorrect. Score: 0
 Accepted Answers:
 b. Transverse Mercator projection
- Consider following two statements: Statement 1: UTM projection divides the globe into 60 zones. Statement 2: In UTM grid system, the parallel running vertical lines are called Easting and the parallel running horizontal lines are called Northing.
 - Both statement 1 and statement 2 are true
 - Statement 1 is true and statement 2 is false
 - Statement 1 is false and statement 1 is true
 - Both statement 1 and statement 2 are false

No, the answer is incorrect. Score: 0
 Accepted Answers:
 a. Both statement 1 and statement 2 are true
- One needs to make an accurate map projection of all the buildings in Guwahati such that area covered by each building is not changed, then which kind of projection would be better?
 - Robinson Projection
 - Mercator Projection
 - Polyconic Projection
 - Stereographic Projection

No, the answer is incorrect. Score: 0
 Accepted Answers:
 b. Mercator Projection
- If it is required to know the approximately population density of a country with the help of a map projection. What will be the best preferred map projection for the purpose?
 - Stereographic projection
 - Gnomonic projection
 - LCC projection
 - Sinusoidal equal area projection

No, the answer is incorrect. Score: 0
 Accepted Answers:
 d. Sinusoidal equal area projection
- Suppose while following a map projection, a person moves along a parallel line on the globe having a scale factor of 1. What kind of map projection is the person following?
 - Gnomonic projection
 - Stereographic projection
 - LCC projection
 - Cylindrical projection

No, the answer is incorrect. Score: 0
 Accepted Answers:
 c. LCC projection
- Altitude angle is the angular distance between
 - Celestial equator and the star in the celestial sphere
 - Celestial horizon and the zenith point of an observer
 - Celestial horizon and a star in the celestial sphere
 - Celestial equator and the zenith point of an observer

No, the answer is incorrect. Score: 0
 Accepted Answers:
 a. Celestial equator and the star in the celestial sphere
- Which of the following can be the Zenith distance of the Sun during the night time
 - 85°
 - 95°
 - 75°
 - 35°

No, the answer is incorrect. Score: 0
 Accepted Answers:
 b. 95°
- Consider following two statements: Statement 1: The Azimuth of a star remain same for every point on the earth surface at a particular time. Statement 2: The Altitude of a star changes with the celestial horizon.
 - Both the Statements 1 and Statement 2 are false
 - Statement 1 is false and Statement 2 is true
 - Both the Statements 1 and Statement 2 are true
 - Statement 1 is true and Statement 2 is false

No, the answer is incorrect. Score: 0
 Accepted Answers:
 b. Statement 1 is false and Statement 2 is true
- The Hour angle of a point on the celestial equator above the West point of the celestial horizon is
 - 0°
 - 90°
 - 180°
 - 45°

No, the answer is incorrect. Score: 0
 Accepted Answers:
 b. 90°
- For a particular position of a star, the position is above the celestial horizon and it lies on the great circle joining the zenith, nadir, and the noon line. What is the value of the azimuth and hour angle of the star in the Horizon equatorial system and the Dependent equatorial system respectively?
 - 90° and 270°
 - 270° and 270°
 - 180° and 180°
 - 270° and 90°

No, the answer is incorrect. Score: 0
 Accepted Answers:
 d. 270° and 90°
- Let the angle made by the first point of Aries from the South direction of the celestial equator be 100°. A star is in the line of a vertical circle passing through the North celestial pole, South celestial pole and the noon line. What is the right ascension of the star in the Independent equatorial system?
 - 110°
 - 100°
 - 90°
 - 10°

No, the answer is incorrect. Score: 0
 Accepted Answers:
 d. 10°
- If the Sun's declination is 15° then what is the azimuth of sun in the morning at a place with reduced astronomic latitude = 30°?
 - 72°
 - 71°
 - 84°
 - 67°

No, the answer is incorrect. Score: 0
 Accepted Answers:
 c. 84°
- Calculate the declination of a star at prime vertical if reduced astronomical latitude Φ^* of observer is 60° and the hour angle is 75°.
 - 24°
 - 44°
 - 64°
 - 84°

No, the answer is incorrect. Score: 0
 Accepted Answers:
 a. 24°
- Consider following two statements: Statement 1: The star at prime vertical is towards North if declination $\delta = 30^\circ$, and reduced astronomical latitude Φ^* of observers location = 60°. Statement 2: The star at prime vertical is towards South if declination $\delta = 45^\circ$, and reduced astronomical latitude Φ^* of observers location = 15°.
 - Statement 1 is true and Statement 2 is false
 - Both Statement 1 and Statement 2 are false
 - Both Statement 1 and Statement 2 are true
 - Statement 1 is false and Statement is true

No, the answer is incorrect. Score: 0
 Accepted Answers:
 b. Both Statement 1 and Statement 2 are false
- Will the Sun rise exactly at the East, if its declination is 60° and reduced astronomical latitude, (Φ^*) of observer's location is 30°?
 - Yes
 - Sun will rise at an angle of 10° to east
 - Sun will rise at an angle of -10° to east
 - Sun will rise at an angle of 15° to east

No, the answer is incorrect. Score: 0
 Accepted Answers:
 a. Yes
- Consider the following two statements regarding the relationship between reduced astronomical latitude Φ^* , and altitude α Statement 1: When the star is between Zenith and Celestial Equator, it is $\Phi^* = \delta + (90^\circ - \alpha)$ Statement 2: When the star is between Zenith and North Celestial Pole, it is $\Phi^* = \delta - (90^\circ - \alpha)$ Statement 3: When the star is between Zenith and Celestial Horizon, it is $\Phi^* = \alpha + (90^\circ - \delta)$
 - Statement 1 is true, Statement 2 is false and Statement 3 is true
 - All the Statements are false
 - All the Statements are true
 - Statement 1 is false, Statement 2 is true and Statement 3 is false

No, the answer is incorrect. Score: 0
 Accepted Answers:
 c. All the Statements are true
- At an observer's location on Earth, if the distance of a star from North of Celestial Horizon to the NCP is 60°, and the polar distance of a star (when it is transiting) is 20°, then what will be the position of the star?
 - Between Zenith and North Celestial Pole
 - Between Zenith and North Celestial Equator
 - Between Zenith and Celestial Horizon
 - Between North Celestial Pole and Celestial Equator

No, the answer is incorrect. Score: 0
 Accepted Answers:
 a. Between Zenith and North Celestial Pole
- What is the hour angle of a star if the latitude of the place of observation is 50° N, given the declination of the star is 45°. Given the azimuth and altitude of the star is 60° W and 30° respectively?
 - 75.26°
 - 85.26°
 - 95.26°
 - 105.26°

No, the answer is incorrect. Score: 0
 Accepted Answers:
 c. 95.26°