

# Andhra Pradesh State Council of Higher Education

## Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

<b>Question Paper Name :</b>	Geo Engineering and Geo Informatics 28th April 2026 Shift 1
<b>Subject Name :</b>	Geo Engineering and Geo Informatics
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## Geo Engineering and Geo Informatics

<b>Group Number :</b>	1
<b>Group Id :</b>	75207665
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	120
<b>Show Attended Group? :</b>	No
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<b>Group Marks :</b>	120

## Geo Engineering and Geo Informatics

<b>Section Id :</b>	75207665
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory

Number of Questions :	120
Number of Questions to be attempted :	120
Section Marks :	120
Section Negative Marks :	0
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	75207665
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 7520767681 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which discontinuity lies between mantle and the outer core?

Options :

1. ✘ Conrad
2. ✔ Gutenberg
3. ✘ Lehman
4. ✘ Repetti

Question Number : 2 Question Id : 7520767682 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

What is the typical depth of continental shelf?

Options :

1. ✘ ~50-75 m
2. ✔ ~100-200 m
3. ✘ ~500-2000 m
4. ✘ ~2000-3000 m

Question Number : 3 Question Id : 7520767683 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Fossils are generally found in which type of rocks?

Options :

1. ✘ Igneous Rocks
2. ✘ Metamorphic Rocks
3. ✘ Plutonic Rocks
4. ✔ Sedimentary Rocks

Question Number : 4 Question Id : 7520767684 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Metamorphic rocks are formed due to:

Options :

1. ✘ Cooling of magma
2. ✘ Weathering only
3. ✔ Heat and pressure acting on existing rocks
4. ✘ Deposition of sediments

Question Number : 5 Question Id : 7520767685 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Granite and basalt belong to which category of rocks?

Options :

1. ✔ Igneous
2. ✘ Sedimentary
3. ✘

## Metamorphic

### 4. ✘ Complex

**Question Number : 6 Question Id : 7520767686 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

What does the concept of isostasy primarily describe?

**Options :**

1. ✔ Hydrostatic equilibrium of the Earth's crust floating on a denser substrate
2. ✘ Movement of tectonic plates due to convection
3. ✘ Formation of mountains due to compression
4. ✘ Cooling of the Earth's mantle

**Question Number : 7 Question Id : 7520767687 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following statements is correct regarding Earth's dimensions?

**Options :**

1. ✘ Polar diameter is greater than equatorial diameter
2. ✔ Equatorial diameter is slightly greater than polar diameter
3. ✘ Both diameters are exactly equal
4. ✘ Polar diameter is double the equatorial diameter

**Question Number : 8 Question Id : 7520767688 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

What is the scientifically accepted approximate age of the Earth?

**Options :**

1. ✘ 6000 years
2. ✘ 1 million years
3. ✔ 4.6 billion years
4. ✘ 4.54 trillion years

**Question Number : 9 Question Id : 7520767689 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A rock layer contains glacial deposits and fossils of cold-adapted organisms. What can be inferred?

**Options :**

1. ✘ The region was once tropical
2. ✔ The region experienced a glacial climate
3. ✘ The fossils were transported from another region
4. ✘ The rock is not sedimentary

**Question Number : 10 Question Id : 7520767690 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A geologist wants to determine both the sequence of events and the exact age of rock layers. Which combination of methods should be used?

**Options :**

1. ✘ Only relative dating

2. ✘ Only radiometric dating
3. ✘ Fossil identification only
4. ✔ Relative dating + radiometric dating

**Question Number : 11 Question Id : 7520767691 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which pair correctly matches rock type and origin?

**Options :**

1. ✘ Marble – Igneous
2. ✘ Granite – Extrusive
3. ✔ Sandstone – Clastic sedimentary
4. ✘ Basalt – Intrusive

**Question Number : 12 Question Id : 7520767692 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The Big Bang Theory is related to which of the following?

**Options :**

1. ✔ Expansion of universe
2. ✘ Expansion of sea-floor
3. ✘ Dispersion of light
4. ✘ Evolution of life

**Question Number : 13 Question Id : 7520767693 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following of the rocks is not of volcanic origin?

**Options :**

1. ✘ Obsidian
2. ✘ Pumice
3. ✘ Rhyolite
4. ✔ Shale

**Question Number : 14 Question Id : 7520767694 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The deepest part of the Ocean located in Mariana Trench of the Pacific Ocean is called:

**Options :**

1. ✔ Challenger Deep
2. ✘ Continental Shelf
3. ✘ Abyssal Plain
4. ✘ Milwaukee Deep

**Question Number : 15 Question Id : 7520767695 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The smallest continent by area is:

**Options :**

1. ✘ Europe

2. ✘ Asia
3. ✘ Antarctica
4. ✔ Australia

**Question Number : 16 Question Id : 7520767696 Question Type : MCQ  
Correct Marks : 1 Wrong Marks : 0**

The Earth rotates around its axis from:

**Options :**

1. ✘ North to South
2. ✔ West to East
3. ✘ East to West
4. ✘ South to North

**Question Number : 17 Question Id : 7520767697 Question Type : MCQ  
Correct Marks : 1 Wrong Marks : 0**

The Earth is closest to the sun during:

**Options :**

1. ✘ Aphelion
2. ✔ Perihelion
3. ✘ Equinox
4. ✘ Solstice

**Question Number : 18 Question Id : 7520767698 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which type of survey accounts for Earth's curvature, enabling more precise measurements over large regions?

**Options :**

1. ✘ Plane table
2. ✘ Cadastral
3. ✘ Topographic
4. ✔ Geodetic

**Question Number : 19 Question Id : 7520767699 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A survey carried out to establish property boundaries, determine land area, and set municipal limits is known as:

**Options :**

1. ✘ Topographical
2. ✘ Hydrographic
3. ✔ Cadastral
4. ✘ Household

**Question Number : 20 Question Id : 7520767700 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which type of aerial photography is best for showing the horizon?

**Options :**

1. ✘ Low oblique

2. ✓ High oblique

3. ✗ Vertical

4. ✗ Ground

**Question Number : 21 Question Id : 7520767701 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following characteristics helps identify a conformal projection on a map?

**Options :**

1. ✗ Parallels are unevenly spaced and intersect meridians obliquely

2. ✓ Meridians intersect parallels at right angles

3. ✗ Areas remain equal throughout the map

4. ✗ Distances are preserved in all directions

**Question Number : 22 Question Id : 7520767702 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

What is the primary purpose of fiducial marks on an aerial photograph?

**Options :**

1. ✗ To calculate urban land use

2. ✗ To calculate atmospheric conditions during capture

3. ✓ To establish a reference coordinate system on the photograph

4. ✗ To measure valleys on the ground directly

**Question Number : 23 Question Id : 7520767703 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

For two ground points A and B at the same elevation on a vertical photograph, the photo scale is determined by

**Options :**

1. ✘ ratio of focal length to flying height only
2. ✘ ratio of ground distance to flying height
3. ✘ ratio of elevation to focal length
4. ✔ ratio of photo distance to ground distance between A and B

**Question Number : 24 Question Id : 7520767704 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The instrument used for measuring the area on a contour map is called:

**Options :**

1. ✘ Areameter
2. ✘ Clinometer
3. ✔ Planimeter
4. ✘ Graphometer

**Question Number : 25 Question Id : 7520767705 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is NOT a method of ranging used in chaining?

**Options :**

1. ✔ Optical ranging

2. ✘ Reciprocal ranging
3. ✘ Direct ranging
4. ✘ Indirect ranging

**Question Number : 26 Question Id : 7520767706 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

Which of the following are NOT digital image data formats?

**Options :**

1. ✘ Band Sequential (BSQ)
2. ✘ Band Interleaved by Line (BIL)
3. ✘ Band Interleaved by Pixel (BIP)
4. ✔ Band Interleaved by Image (BII)

**Question Number : 27 Question Id : 7520767707 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

In a vertical photograph, which point on ground lies directly below the camera?

**Options :**

1. ✘ Principal point
2. ✘ Isocenter
3. ✔ Nadir point
4. ✘ Perspective centre

**Question Number : 28 Question Id : 7520767708 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Why is side lap provided in aerial photography?

**Options :**

1. ✓ To prevent gaps between adjacent flight strips
2. ✗ To improve camera focal length
3. ✗ To reduce flying height
4. ✗ To increase image resolution

**Question Number : 29 Question Id : 7520767709 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

If the solar elevation angle at a location is  $50^\circ$ , what is the solar zenith angle?

**Options :**

1. ✗  $130^\circ$
2. ✓  $40^\circ$
3. ✗  $140^\circ$
4. ✗  $50^\circ$

**Question Number : 30 Question Id : 7520767710 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

In an aerial photograph affected by tilt, how does the scale vary across the image?

**Options :**

1. ✗ Scale varies randomly across the photograph
2. ✗ Scale remains constant throughout the photograph

3. ✓ Scale is smaller on the upper side and larger on the lower side

4. ✗ Scale is larger on the upper side and smaller on the lower side

**Question Number : 31 Question Id : 7520767711 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Sensors that provide their own energy source for illumination are known as:

**Options :**

1. ✗ Passive

2. ✓ Active

3. ✗ Imaging

4. ✗ Non-imaging

**Question Number : 32 Question Id : 7520767712 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The ability of a sensor to distinguish between different wavelengths of electromagnetic radiation is called:

**Options :**

1. ✗ Spatial resolution

2. ✗ Temporal resolution

3. ✓ Spectral resolution

4. ✗ Radiometric resolution

**Question Number : 33 Question Id : 7520767713 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

RISAT stands for:

**Options :**

1. ✘ Radio satellite
2. ✘ Radio navigation and ranging satellite
3. ✔ Radar Imaging Satellite
4. ✘ Resource Information Satellite

**Question Number : 34 Question Id : 7520767714 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

WGS84 is known as:

**Options :**

1. ✘ Medium earth orbit
2. ✔ Datum
3. ✘ Geoid
4. ✘ Indian MSL

**Question Number : 35 Question Id : 7520767715 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Two main reference surfaces to approximate the shape of Earth are:

**Options :**

1. ✘ Geoid, Ellipse
2. ✘ Gid, Ellipse
3. ✔ Geoid, Ellipsoid
4. ✘ Reference plane, Datum

**Question Number : 36 Question Id : 7520767716 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Diffused reflection of solar radiation from earth's surface out of total solar radiation is known as?

**Options :**

1. ✘ Radiance
2. ✘ Irradiance
3. ✔ Albedo
4. ✘ Reflectance

**Question Number : 37 Question Id : 7520767717 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

What helps to identify objects on earth's surface?

**Options :**

1. ✘ Atmospheric window
2. ✔ Spectral signature
3. ✘ Radiometric calibration
4. ✘ Spectral indices

**Question Number : 38 Question Id : 7520767718 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Higher spatial resolution is attained in azimuth (along-track) direction for Synthetic Aperture Radar (SAR) data through:

**Options :**

1. ✘

A physically very large antenna

2. ✘ Increasing pulse repetition frequency
3. ✔ Synthesizing a large "virtual" antenna through platform motion
4. ✘ Reducing wavelength

**Question Number : 39 Question Id : 7520767719 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The ortho-rectification:

**Options :**

1. ✘ Improves image brightness
2. ✘ Removes atmospheric haze from remote sensing image
3. ✔ Removes geometric distortions caused by terrain relief and sensor tilt
4. ✘ Converts raster image into vector polygons

**Question Number : 40 Question Id : 7520767720 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which sensor is best for identifying mineral deposits?

**Options :**

1. ✔ Hyperspectral
2. ✘ Optical
3. ✘ Panchromatic
4. ✘ Weather

**Question Number : 41 Question Id : 7520767721 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A passive sensor uses:

**Options :**

1. ✓ Sun as source of energy
2. ✘ Flashlight as a source of energy
3. ✘ Its own source of energy
4. ✘ Doesn't need any source of energy

**Question Number : 42 Question Id : 7520767722 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Who is known as father of Indian Space Program?

**Options :**

1. ✘ Prof. P. R. Pisharoty
2. ✓ Dr. Vikram Sarabhai
3. ✘ Dr. Homi J. Bhabha
4. ✘ Prof. U. R. Rao

**Question Number : 43 Question Id : 7520767723 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which statement best represents Kirchoff's Law of Thermal Radiation?

**Options :**

1. ✘ Good absorbers are poor emitters of radiation

2. ✘ All bodies emit radiation equally regardless of material
3. ✘ Radiation intensity depends only on temperature
4. ✔ Emissivity of a body equals its absorptivity at thermal equilibrium

**Question Number : 44 Question Id : 7520767724 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which factor primarily controls reflectance in the SWIR region of vegetation?

**Options :**

1. ✘ Chlorophyll concentration
2. ✘ Leaf orientation
3. ✔ Water content in leaf tissue
4. ✘ Leaf thickness

**Question Number : 45 Question Id : 7520767725 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A satellite with 60° inclination cannot observe

**Options :**

1. ✘ Equatorial region
2. ✘ Mid-latitudes
3. ✔ Polar regions
4. ✘ Oceans

**Question Number : 46 Question Id : 7520767726 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The primary objective of the NISAR mission is to

**Options :**

1. ✘ Provide high-resolution optical imagery for urban mapping
2. ✔ Measure Earth surface changes using dual-frequency radar
3. ✘ Monitor carbon emissions
4. ✘ Support satellite communication services

**Question Number : 47 Question Id : 7520767727 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

For high-precision urban mapping requiring sub-meter accuracy, the most suitable satellite is

**Options :**

1. ✘ Resourcesat
2. ✘ INSAT
3. ✔ WorldView
4. ✘ AVHRR

**Question Number : 48 Question Id : 7520767728 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which system is specifically designed for systematic along-track stereo imaging in a single pass?

**Options :**

1. ✔ Cartosat-1

2. ✘ WorldView

3. ✘ SPOT

4. ✘ Landsat-1

**Question Number : 49 Question Id : 7520767729 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Spectral sensitivity of a detector refers to

**Options :**

1. ✘ Temporal resolution

2. ✘ Wavelength response range

3. ✔ Radiometric resolution

4. ✘ Spatial resolution

**Question Number : 50 Question Id : 7520767730 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

In remote sensing, what does a Digital Number (DN) represent?

**Options :**

1. ✘ Actual physical radiance value with units

2. ✘ Continuous analog signal from the sensor

3. ✔ Quantized digital value of the detected signal without physical units

4. ✘ Geographic coordinates of a pixel

**Question Number : 51 Question Id : 7520767731 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which combination correctly represents the primary mechanisms through which EMR interacts with matter in remote sensing?

**Options :**

1. ✘ Refraction, diffraction, polarization
2. ✔ Absorption, reflection, scattering, emission, transmission
3. ✘ Conduction, convection, radiation
4. ✘ Amplification, attenuation, modulation

**Question Number : 52 Question Id : 7520767732 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which type of scattering is dominant when the wavelength of electromagnetic radiation is much larger than the size of atmospheric particles?

**Options :**

1. ✘ Non-selective scattering
2. ✘ Mie scattering
3. ✔ Rayleigh scattering
4. ✘ Specular reflection

**Question Number : 53 Question Id : 7520767733 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which satellite platform is best suited for global mapping and Earth resource surveys with high spatial resolution?

**Options :**

1. ✓ Polar orbit
2. ✗ Medium Earth Orbit
3. ✗ Geostationary orbit
4. ✗ Sun-synchronous orbit

**Question Number : 54 Question Id : 7520767734 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which optical scanner has rotating scan mirror to scan the Earth perpendicular to the satellite track?

**Options :**

1. ✓ Across Track Scanners
2. ✗ Along Track Scanners
3. ✗ Frame Cameras
4. ✗ Radar scanner

**Question Number : 55 Question Id : 7520767735 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Sun-synchronous satellites orbit at an altitude of \_\_\_\_\_ km from the Earth.

**Options :**

1. ✗ 80

2. ✓ 800

3. ✗ 100

4. ✗ 2000

**Question Number : 56 Question Id : 7520767736 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

At a particular wavelength, if the reflectance of a body is 0.4, absorptance is 0.5, what is the transmittance for the same wavelength?

**Options :**

1. ✓ 0.1

2. ✗ 0.4

3. ✗ 0.5

4. ✗ 0.9

**Question Number : 57 Question Id : 7520767737 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which radiometric quantity represents power per unit area received from a surface per unit solid angle?

**Options :**

1. ✗ Irradiance

2. ✓ Radiance

3. ✗ Radiant Flux

4. ✗

## Reflectance

**Question Number : 58 Question Id : 7520767738 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Resourcesat-2 LISS-IV Indian satellite has a multispectral spatial resolution of:

**Options :**

1. ✓ 5.8 m
2. ✗ 23.5 m
3. ✗ 2.5 m
4. ✗ 0.3 m

**Question Number : 59 Question Id : 7520767739 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Sandy soils generally have

**Options :**

1. ✓ high permeability
2. ✗ low permeability
3. ✗ high porosity
4. ✗ high cohesion

**Question Number : 60 Question Id : 7520767740 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

If the wavelength of electromagnetic radiation increases, its energy will:

**Options :**

1. ✗ Increase

2. ✓ Decrease
3. ✗ Remain constant
4. ✗ Become zero

**Question Number : 61 Question Id : 7520767741 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

An Orthophoto differs from a normal aerial photograph because:

**Options :**

1. ✗ It contains spatial and spectral information
2. ✗ It shows oblique perspective
3. ✓ It has uniform scale and is free from tilt and relief distortions
4. ✗ It has elevation data

**Question Number : 62 Question Id : 7520767742 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

Which of the following is a horizontal datum?

**Options :**

1. ✗ Mean Sea Level (MSL)
2. ✗ EGM96
3. ✓ WGS84
4. ✗ NAV88

**Question Number : 63 Question Id : 7520767743 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

Which statement correctly distinguishes the geoid from an ellipsoid?

**Options :**

1. ✘ Ellipsoid represents mean sea level, geoid is a mathematical surface
2. ✔ Geoid represents mean sea level, ellipsoid is a mathematical approximation of Earth's shape
3. ✘ Both are exactly the same
4. ✘ Ellipsoid is used only in oceans

**Question Number : 64 Question Id : 7520767744 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The satellites used for weather monitoring and communication at an altitude of 36000 km is called:

**Options :**

1. ✘ Polar satellite
2. ✘ Low Earth Orbit satellite
3. ✘ Sun-synchronous satellite
4. ✔ Geostationary satellite

**Question Number : 65 Question Id : 7520767745 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Chandrayaan-3's Vikram-Pragyan mission is significant because:

**Options :**

1. ✘ First Indian rover on Moon
2. ✔ First soft landing near lunar south pole

3. ✘ First rover powered by nuclear energy
4. ✘ First rover to map the Moon completely

**Question Number : 66 Question Id : 7520767746 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

Repetitivity of satellite data refers to:

**Options :**

1. ✘ Ability of a satellite to capture images in different spectral bands
2. ✔ Ability of a satellite to revisit and capture data of the same area at regular intervals
3. ✘ Ability of a satellite to capture high-resolution images
4. ✘ Ability of a satellite to cover large areas in one pass

**Question Number : 67 Question Id : 7520767747 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

What is the scale of cadastral maps?

**Options :**

1. ✘ 1:2000
2. ✘ 1:50,000
3. ✔ 1:500 to 1:10000
4. ✘ 1:100000

**Question Number : 68 Question Id : 7520767748 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

An oblique photograph is characterised by:

**Options :**

1. ✓ Tilted camera axis
2. ✗ No distortion
3. ✗ Plan view only
4. ✗ Constant scale

**Question Number : 69 Question Id : 7520767749 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which database structure is most used in GIS to link spatial and non-spatial data?

**Options :**

1. ✗ Hierarchical
2. ✗ Network
3. ✗ Object-oriented
4. ✓ Relational (RDBMS)

**Question Number : 70 Question Id : 7520767750 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which topological element represents start and end points of an arc?

**Options :**

1. ✓ Node
2. ✗ Polygon
3. ✗ Sliver

4. ✘ Vertex

**Question Number : 71 Question Id : 7520767751 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Quad tree structure is related to

**Options :**

1. ✘ Attribute data

2. ✘ Vector data

3. ✔ Raster data

4. ✘ RDBNS

**Question Number : 72 Question Id : 7520767752 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

In GIS, what does the object-based model represent?

**Options :**

1. ✔ Discrete features with identifiable boundaries and attributes

2. ✘ 2D representation of 3D objects

3. ✘ Randomly scattered features without any specific characteristics

4. ✘ Continuous features with no boundaries

**Question Number : 73 Question Id : 7520767753 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Conversion of raster image into vector data is known as:

**Options :**

1. ✘ Rasterisation
2. ✘ Resampling
3. ✘ Topology creation
4. ✔ Vectorisation

**Question Number : 74 Question Id : 7520767754 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which technique is not used for interpolating the continuous data?

**Options :**

1. ✘ Kriging
2. ✘ Trend surface fitting
3. ✔ Digitization
4. ✘ Triangulation

**Question Number : 75 Question Id : 7520767755 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which method is employed to transform spatial data when changing its dimensionality or position?

**Options :**

1. ✘ Buffering
2. ✘ Rubber sheeting
3. ✔ Affine transform
4. ✘

## Building topology

Question Number : 76 Question Id : 7520767756 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Which soil has the highest water holding capacity?

Options :

1. ✘ Sandy
2. ✔ Clayey
3. ✘ Loamy
4. ✘ Mixture of sand and loam

Question Number : 77 Question Id : 7520767757 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

What is the minimum number of satellites needed for a GPS receiver to determine its position precisely?

Options :

1. ✘ 1
2. ✘ 2
3. ✔ 4
4. ✘ 6

Question Number : 78 Question Id : 7520767758 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Triangulated Irregular Network (TIN) is described as:

Options :

1. ✘ Raster data
2. ✘ Vector data of rainfall
3. ✘ Grid data of elevation
4. ✔ Vector based representation of physical land surface

**Question Number : 79 Question Id : 7520767759 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

Which function in GIS software allows to link spatial and non-spatial data?

**Options :**

1. ✘ Union
2. ✘ Intersect
3. ✔ Join
4. ✘ Link

**Question Number : 80 Question Id : 7520767760 Question Type : MCQ**  
**Correct Marks : 1 Wrong Marks : 0**

Along-track stereovision is primarily achieved by which mechanism?

**Options :**

1. ✘ Imaging same area from two different orbital passes.
2. ✘ Using two different satellites to image same area.
3. ✔ A single satellite acquiring two images (e.g., fore and aft) in same pass.
4. ✘

Rotating sensor in across-track direction.

**Question Number : 81 Question Id : 7520767761 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A Hyperspectral sensor is characterized by:

**Options :**

1. ✘ Small number of wide spectral bands
2. ✔ Large number of narrow, contiguous spectral bands
3. ✘ Only thermal infrared bands
4. ✘ Low spatial resolution only

**Question Number : 82 Question Id : 7520767762 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which data type of the following not represented using raster data?

**Options :**

1. ✘ Elevation
2. ✘ Temperature
3. ✔ Land parcels
4. ✘ Satellite imagery

**Question Number : 83 Question Id : 7520767763 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The ability of SPOT satellites to tilt their sensors off-nadir primarily enables

**Options :**

1. ✘ Increased radiometric resolution

2. ✘ Continuous global coverage
3. ✘ Higher spectral resolution
4. ✔ Revisit flexibility and stereoscopic mapping

**Question Number : 84 Question Id : 7520767764 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The best spatial resolution achieved by Indian remote sensing satellites is approximately

**Options :**

1. ✘ 5.8m
2. ✘ 10.0m
3. ✔ 2.5m
4. ✘ 23.5m

**Question Number : 85 Question Id : 7520767765 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is not a component of GIS?

**Options :**

1. ✘ Remote sensing data
2. ✘ Software for spatial analysis
3. ✘ Trained personnel
4. ✔ Coordinate reference system

**Question Number : 86 Question Id : 7520767766 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

In GIS, topology primarily refers to

**Options :**

1. ✘ Mathematical modelling of elevation
2. ✘ Storage of raster data
3. ✘ Visualization of maps
4. ✔ Representation of spatial relationships between features

**Question Number : 87 Question Id : 7520767767 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A tessellation in GIS primarily refers to

**Options :**

1. ✘ Interpolation of spatial values across irregular surfaces
2. ✘ Storage of spatial data in relational tables
3. ✔ Division of space into non-overlapping cells covering the entire study area
4. ✘ Representation of spatial features using vectors

**Question Number : 88 Question Id : 7520767768 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

What is the main function of control points (tie points) in digitizing?

**Options :**

1. ✔ To assign real-world coordinates to digitized data
2. ✘

To improve image resolution

3. ✘ To add symbols to maps
4. ✘ To reduce file size

**Question Number : 89 Question Id : 7520767769 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which rule states that no two records can have the same primary key?

**Options :**

1. ✘ Key integrity
2. ✘ Referential integrity
3. ✔ Key uniqueness
4. ✘ Domain integrity

**Question Number : 90 Question Id : 7520767770 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which data is primarily used to compute distance in vector networks?

**Options :**

1. ✔ x and y coordinates of endpoints
2. ✘ Color values
3. ✘ Attribute table
4. ✘ Pixel values

**Question Number : 91 Question Id : 7520767771 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

In a GIS-based groundwater recharge study, soil permeability is used as an input layer. How does high soil permeability influence the analysis?

**Options :**

1. ✘ Decreases infiltration and increases runoff
2. ✔ Increases infiltration and supports groundwater recharge
3. ✘ Has no effect on water movement
4. ✘ Prevents water from entering the soil

**Question Number : 92 Question Id : 7520767772 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A GIS analyst is measuring the shortest route through a road network stored as raster data, which approach will be used?

**Options :**

1. ✘ Using attribute queries only
2. ✔ Adding grid-cell lengths along the path
3. ✘ Calculating polygon areas
4. ✘ Ignoring diagonal connections

**Question Number : 93 Question Id : 7520767773 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Evapotranspiration refers to which of the following processes?

**Options :**

1. ✘ Movement of water through underground aquifers

2. ✘ Surface runoff of water into rivers and lakes

Combined loss of water to the atmosphere through evaporation and plant transpiration

3. ✔

4. ✘ Conversion of water vapour into precipitation

**Question Number : 94 Question Id : 7520767774 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following operations involves selecting all land parcels with slope  $>15^\circ$  and soil type is clay, without creating new data entities?

**Options :**

1. ✘ Aggregation

2. ✘ Generalization

3. ✔ Retrieval

4. ✘ Classification

**Question Number : 95 Question Id : 7520767775 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is not commonly used as a synonym for a line in GIS?

**Options :**

1. ✘ Polyline

2. ✘ Arc

3. ✘ Edge

4. ✔ Pixel

**Question Number : 96 Question Id : 7520767776 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

If raster resolution decreases (cell size increases), which of the following occurs?

**Options :**

1. ✓ Spatial detail decreases
2. ✗ Data volume increases
3. ✗ Spatial detail increases
4. ✗ Accuracy always improves

**Question Number : 97 Question Id : 7520767777 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

In 1:100000 scale map, 1 cm on map corresponds to how many kilometres on the ground?

**Options :**

1. ✓ 1 km
2. ✗ 0.1 km
3. ✗ 10 km
4. ✗ 100 km

**Question Number : 98 Question Id : 7520767778 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Sliver polygons are:

**Options :**

1. ✗ A polygon representing silver mineral deposits

2. ✘ A polygon created by dissolving adjacent polygons

3. ✔ A very small and narrow polygon formed unintentionally during overlay due to boundary mismatches

4. ✘ A large polygon created after buffering a feature

**Question Number : 99 Question Id : 7520767779 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is not a common GIS topology error?

**Options :**

1. ✘ Overshoot

2. ✘ Dangles

3. ✔ Buffer

4. ✘ Spikes

**Question Number : 100 Question Id : 7520767780 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Positional error is error due to:

**Options :**

1. ✘ Incorrect labelling of features

2. ✔ Imprecision in coordinate registration

3. ✘ Biasness in shapefiles

4. ✘ Elevation changes

**Question Number : 101 Question Id : 7520767781 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is used to check the topological correctness of vector data structures in GIS?

**Options :**

1. ✘ Kriging equation
2. ✘ Georeferencing
3. ✘ Euclidean distance
4. ✔ Euler Equation

**Question Number : 102 Question Id : 7520767782 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Kriging differs from Inverse Distance Weighting (IDW) interpolation because it:

**Options :**

1. ✘ Works with raster data
2. ✔ Uses spatial autocorrelation
3. ✘ Ignores spatial relationships
4. ✘ Ignores spectral analysis

**Question Number : 103 Question Id : 7520767783 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The following model represents terrain variation more efficiently with fewer data points:

**Options :**

1. ✘ Digital Elevation Model
2. ✘ Digital Surface Model
3. ✔ Triangulated Irregular Network
4. ✘ Raster data model

**Question Number : 104 Question Id : 7520767784 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Which language is commonly used for querying attribute data in GIS databases?

**Options :**

1. ✘ HTML
2. ✘ Python
3. ✔ Structured Query language (SQL)
4. ✘ Java Script

**Question Number : 105 Question Id : 7520767785 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

A GIS contains which component?

**Options :**

1. ✘ Hardware only
2. ✘ Software only
3. ✘ Data only
4. ✔ Hardware, software and data

**Question Number : 106 Question Id : 7520767786 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

What is the difference between join and relate in GIS?

**Options :**

1. ✘ There is no difference, they both have one to many relationship
2. ✘ Join has one to one relationship, and relate has one to many relationship
3. ✔ Relate has one to one relationship, and join has one to many relationship
4. ✘ There is no difference, they both have one to one relationship

**Question Number : 107 Question Id : 7520767787 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

In a Vector data model, which of the following is representation of an area?

**Options :**

1. ✘ Points
2. ✘ Pixels
3. ✔ Polygon
4. ✘ Nodes

**Question Number : 108 Question Id : 7520767788 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The minimum spatial resolution offered by SRTM Digital Elevation Model is:

**Options :**

1. ✘ 0.5 arc second

2. ✓ 1 arc second

3. ✗ 2 arc second

4. ✗ 3 arc second

**Question Number : 109 Question Id : 7520767789 Question Type : MCQ  
Correct Marks : 1 Wrong Marks : 0**

A sensor with 10-bit radiometric resolution can record how many gray levels?

**Options :**

1. ✗ 256

2. ✗ 512

3. ✓ 1024

4. ✗ 2048

**Question Number : 110 Question Id : 7520767790 Question Type : MCQ  
Correct Marks : 1 Wrong Marks : 0**

The Normalized Digital Surface Model is generally calculated as:

**Options :**

1. ✗  $DSM + DTM$

2. ✓  $DSM - DTM$

3. ✗  $DTM - DSM$

4. ✗  $DSM / DTM$

**Question Number : 111 Question Id : 7520767791 Question Type : MCQ**

Correct Marks : 1 Wrong Marks : 0

The rank of the matrix  $\begin{pmatrix} 1 & 2 & 3 \\ 2 & 1 & 0 \\ 0 & 1 & 2 \end{pmatrix}$  is

Options :

1. ✘ 0

2. ✘ 1

3. ✘ 3

4. ✔ 2

Question Number : 112 Question Id : 7520767792 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The eigen values of a  $3 \times 3$  real matrix  $A$  are 1, -2, 3. Then

Options :

1. ✔  $A^{-1} = \frac{1}{6}(5I + 2A - A^2)$

2. ✘  $A^{-1} = \frac{1}{6}(5I - 2A + A^2)$

3. ✘  $A^{-1} = \frac{1}{6}(5I - 2A - A^2)$

4. ✘  $A^{-1} = \frac{1}{6}(5I + 2A + A^2)$

Question Number : 113 Question Id : 7520767793 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The value of the definite integral  $\int_0^1 \frac{xe^x}{(x+1)^2} dx$  is equal to \_\_\_\_\_

Options :

1. ✓  $\frac{e-2}{2}$

2. ✗  $\frac{e}{2}$

3. ✗  $\frac{e-1}{2}$

4. ✗  $\frac{e-3}{2}$

Question Number : 114 Question Id : 7520767794 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

The value of the constant  $a$  so that the vector  $\vec{V} = (x+3y)\hat{i} + (y-2z)\hat{j} + (x+az)\hat{k}$  is solenoidal is

Options :

1. ✗  $-1$

2. ✗  $1$

3. ✓  $-2$

4. ✗  $2$

Question Number : 115 Question Id : 7520767795 Question Type : MCQ

**Correct Marks : 1 Wrong Marks : 0**

Let  $I = \int_C zdx + ydy + xdz$ , where  $x, y, z$  are real and let  $C$  be the straight line segment from the point  $(0,2,1)$  to the point  $(4,1,-1)$ . The value of the line integral  $I$  is equal to

\_\_\_\_\_

**Options :**

1. ✘  $\frac{19}{2}$

2. ✔  $\frac{-11}{2}$

3. ✘  $\frac{5}{2}$

4. ✘  $\frac{-19}{2}$

**Question Number : 116 Question Id : 7520767796 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

The value of  $\int_0^{2+i} (\bar{z})^2 dz$  along  $x = 2y$ , is \_\_\_\_\_

**Options :**

1. ✘  $\frac{5}{3}(2+i)$

2. ✔  $\frac{5}{3}(2-i)$

3. ✘  $\frac{2}{3}(5-i)$

4. ✘  $\frac{2}{3}(5+i)$

Question Number : 117 Question Id : 7520767797 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Residue of  $\tan z$  at  $z = \frac{\pi}{2}$  is \_\_\_\_\_

Options :

1. ✓ -1

2. ✗ 0

3. ✗ 1

4. ✗ 2

Question Number : 118 Question Id : 7520767798 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

If  $X$  is a poisson random variable with  $P(X = 0) = 0.8$ , then the variance of  $X$  is equal to \_\_\_\_\_

Options :

1. ✗  $\ln \frac{4}{5}$

2. ✓  $\ln \frac{5}{4}$

3. ✗  $\ln \frac{1}{20}$

4. ✗  $\ln 20$

Question Number : 119 Question Id : 7520767799 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

During a space shot, the primary computer system is backed up by two secondary systems. They operate independently of one another and each is 90% reliable. The probability that all three systems will be operable at the time of the launch is

**Options :**

1. ✓ 0.729
2. ✗ 0.81
3. ✗ 0.90
4. ✗ 0.27

**Question Number : 120 Question Id : 7520767800 Question Type : MCQ**

**Correct Marks : 1 Wrong Marks : 0**

Consider the function  $f(x, y) = (x - 2)^2(y + 3)$ . Then

**Options :**

1. ✗  $(2, -3)$  is not a stationary point of  $f$
2. ✗  $f$  has a local minimum at  $(2, -3)$
3. ✗  $f$  has a local maximum at  $(2, -3)$
4. ✓  $f$  has neither a local maximum nor a local minimum at  $(2, -3)$