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# M.Sc. (Geoinformatics) (Semester - I) (New) (NEP CBCS)
# Examination: March/April – 2026
# Basics of GIS and GNSS (2331101)

Day & Date: Friday, 17-04-2026 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) What does GIS stand for?
   a) Geographic Information Science
   b) Global Information System
   c) Geographic Information System
   d) Global Imaging System

2) Which of the following is NOT a component of GIS?
   a) Hardware b) Software
   c) People d) Telecommunication

3) Which file format is primarily used to store vector data in GIS?
   a) .csv b) .shp
   c) .tiff d) .jpeg

4) Which of the following is an example of raster data?
   a) A road network b) A soil map
   c) Satellite imagery d) A point feature

5) What does GPS stand for?
   a) Global Positioning System
   b) Geographic Positioning Satellite
   c) Ground Positioning Satellite
   d) Geographic Projection System

6) How many satellites make up the GPS constellation for full coverage?
   a) 18 b) 21
   c) 24 d) 30

7) What type of signal does GPS use to determine the location?
   a) Infrared b) Radio
   c) Microwave d) Ultrasonic

8) GPS receivers use signals from how many satellites to calculate a position accurately?
   a) At least 2 b) At least 3
   c) At least 4 d) At least 5

**B) Fill in the blanks** **04**

a) A _____ map represents data as a continuous surface, often in the form of pixels.
b) _____ Data in GIS represents specific locations using points, lines, and polygons.
c) GPS can provide information about location, speed, and _____.
d) GPS works using signals from _____ orbiting Earth.

**Q.2 Answer the following. (Any Six)** **12**

**a)** Define GIS and explain its importance.
**b)** What are raster and vector data in GIS?
**c)** Explain the role of topology in GIS.
**d)** Explain the concept of layers in GIS.
**e)** Define GPS and explain its main components.
**f)** How does GPS work to determine a location?
**g)** What are the common sources of GPS errors?
**h)** Define GIS and explain its importance.

**Q.3 Answer the following. (Any Three)** **12**

**a)** What are the advantages of using GIS for spatial analysis?
**b)** Explain the process of data acquisition in GIS.
**c)** Explain the importance of GPS in navigation.
**d)** What is the difference between GPS and GIS?

**Q.4 Answer the following. (Any Two)** **12**

**a)** What is the difference between spatial and attribute data in GIS?
**b)** Discuss the role of GIS in Earth Resources management
**c)** Discuss the role of GPS in geospatial technology.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Discuss the applications of GPS in transportation.
**b)** Explain the importance of GIS in disaster management and risk analysis.
**c)** Explain the integration of geography with other geospatial technologies like remote sensing.

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Set **P**

# M.Sc. (Geoinformatics) (Semester - I) (New) (NEP CBCS)
# Examination: March/April - 2026
# Principles of Remote sensing (2331102)

Day & Date: Monday, 20-04-2026 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) IFOV stands for _____.
   a) Incident Field of View
   b) Instantaneous Field of View
   c) Incident Front of View
   d) Instantaneous Front of View

2) The number of cycles of wave passing a fixed point over a specific period of time is called _____.
   a) Amplitude b) Frequency
   c) Wavelength d) Wave number

3) _____ is one of the following frequency regions is a part of sun's radiation.
   a) Ultraviolet frequency region
   b) Visible and Radio frequency region
   c) Infrared frequency region
   d) All of these

4) IRS is a satellite series of _____.
   a) India b) Japan
   c) Germany d) USA

5) In _____ year India launched Bhaskara-1.
   a) 1979 b) 1988
   c) 1972 d) 1975

6) ISRO stands for _____.
   a) Indian Space Research Organization
   b) Iran Space Research Organization
   c) Iceland Space Research Organization
   d) None of these

7) _____can lift low weight instrument for the collection of the information of earth features.
   a) Free balloon b) powered balloon
   c) tethered balloon d) none of these

8) Which wavelength of electromagnetic radiation is used for vegetation monitoring in remote sensing?
   a) X-rays
   b) Radio waves
   c) Near-infrared
   d) Ultraviolet

**B) Write true/false.** **04**

1) In active type of remote sensing, the Sun is primary source of energy.
2) The wavelength of satellite revisits is known as temporal resolution.
3) Multiple bands are usually used in a panchromatic image.
4) The shape of a pixel can vary depending on the sensor.

**Q.2 Answer the following. (Any Six)** **12**

**a)** Define wavelength.
**b)** Bhaskara.
**c)** Define Projection.
**d)** Fiducial marks.
**e)** Nadir point.
**f)** Magnetic field.
**g)** Geostationary Satellite.
**h)** Define Resolution.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Types of aerial photography.
**b)** temporal resolution.
**c)** Mie scattering.
**d)** Basic requirements of aerial photography.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Elements of aerial photography.
**b)** Geometric corrections.
**c)** Wish broom and push broom scanners.

**Q.5 Answer the following. (Any Two)** **12**

**a)** History of aerial photography.
**b)** Atmospheric window.
**c)** Types of platforms.

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# M.Sc. (Geoinformatics) (Semester - I) (New) (NEP CBCS) Examination: March/April – 2026
# IT for Geoinformatics (2331109)

Day & Date: Wednesday, 22-04-2026 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) What does an RDBMS consist of?
   a) Collection of Records b) Collection of Keys
   c) Collection of Tables d) Collection of Fields

2) Who is the father of Computers?
   a) James Gosling b) Charles Babbage
   c) Dennis Ritchie d) Bjarne Stroustrup

3) Which command is used to remove a relation from an SQL?
   a) Remove b) Purge
   c) Drop table d) Delete

4) What is the primary function of RAM?
   a) Store data permanently
   b) Store temporary data for quick access
   c) Manage system resources
   d) Provide internet connectivity

5) Which of the following is considered the brain of the computer?
   a) Keyboard b) CPU
   c) RAM d) Hard Drive

6) Which of the following is the correct abbreviation of COMPUTER?
   a) Commonly Occupied Machines Used in Technical and Educational Research
   b) Commonly Operated Machines Used in Technical and Environmental Research
   c) Commonly Oriented Machines Used in Technical and Educational Research
   d) Commonly Operated Machines Used in Technical and Educational Research

7) Which of the following computer language is written in binary codes only?
   a) Pascal b) Machine language
   c) C d) C#

8) Which of the following is the smallest unit of data in a computer?
   a) Bit b) KB
   c) Nibble d) Byte

**B) Fill in the blanks OR Write True/False.** **04**

1) The process of organizing data into tables is called _____.
2) In a relational database, each row in a table is known as a _____.
3) A table or relation is itself a collection of "tuples' (or records)
   a) True b) False
4) Land Use refers to how land is utilized by humans, while Land Cover refers to the physical material at the surface of the Earth.
   a) True b) False

**Q.2 Answer the following. (Any Six)** **12**

**a)** Define hardware
**b)** Define RAM
**c)** Advantages of the Hierarchical model.
**d)** Define mouse and its uses.
**e)** What is land cover and best examples of the land cover classes?
**f)** Define database security.
**g)** What is CPU?
**h)** Define printer and projector.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Write a short note on Internet.
**b)** Describe in detail storage devices.
**c)** Role of a DBA. What are the key responsibilities of a DBA in maintaining DB systems, including performance tuning, backup and recovery, and user management?
**d)** Explore the different types of table relationships in a relational database.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Write the Output devices to the computers.
**b)** Discuss the various image processing techniques used in geoinformatics. Describe the techniques enhance the analysis of satellite images for environmental monitoring?
**c)** Geographical applications related with the mapping of settlement.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Explain in details various applications of computer in Environment.
**b)** Write in detail about Operating System.
**c)** Examples for Geoinformatics applications in image processing.

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Set **P**

# M.Sc. (Geoinformatics) (Semester - I) (New) (NEP CBCS)
# Examination: March/April – 2026
# Research Methodology (2331103)

Day & Date: Friday, 24-04-2026 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

**1)** The first step of research is _____.
a) Selecting a problem b) Searching a problem
c) Finding a problem d) Identifying a problem

**2)** Research can be classified as _____.
a) Basic, Applied and Action Research
b) Philosophical, Historical, Survey and Experimental Research
c) Quantitative and Qualitative Research
d) All the above

**3)** The study in which the investigators attempt to trace an effect is known as _____.
a) Survey Research b) Summative Research
c) Historical Research d) 'Ex-post Facto' Research

**4)** Generalized conclusion on the basis of a sample is technically known as _____.
a) Data analysis and interpretation
b) Parameter inference
c) Statistical inference
d) All of the above

**5)** Fundamental research reflects the ability to _____.
a) Synthesize new ideals
b) Expound new principles
c) Evaluate the existing material concerning research
d) Study the existing literature regarding various topics

**6)** The main characteristic of scientific research is _____.
a) empirical b) theoretical
c) experimental d) All of the above

**7)** Authenticity of a research finding is its _____.
a) Originality b) Validity
c) Objectivity d) All of the above

**8)** _____ technique is generally followed when the population is finite?
   a) Area Sampling Technique
   b) Purposive Sampling Technique
   c) Systematic Sampling Technique
   d) None of the above

**B) Fill in the blanks OR Write True/False.** **04**

1) A key characteristic of scientific research is subjectively.
2) Bias in data collection is a common problem in social research.
3) Research is a process of systematic and objective investigation.
4) Descriptive research is used to explain cause and effect relationship.

**Q.2 Answer the following. (Any Six)** **12**

**a)** Define Research.
**b)** Advantages of research
**c)** Qualitative research
**d)** Conceptual research
**e)** Empirical research
**f)** h- index
**g)** SPSS
**h)** Literature

**Q.3 Answer the following. (Any Three)** **12**

**a)** Criteria of good research
**b)** Objective of research
**c)** Stratified Sampling
**d)** Survey Method

**Q.4 Answer the following. (Any Two)** **12**

**a)** Systematic and Cluster sampling
**b)** Types of Data collection
**c)** Describe Plagiarism

**Q.5 Answer the following. (Any Two)** **12**

**a)** Research ethics
**b)** Calculation of impact factor
**c)** Roll of Statistics in research

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# M.Sc. (Geoinformatics) (Semester - II) (New) (NEP CBCS)
# Examination: March/April – 2026
# Digital Image Analysis (2331201)

Day & Date: Thursday, 16-04-2026 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to right indicates full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) In digital image processing, what does a pixel represent?
   a) The resolution of the image
   b) The size of the image
   c) A single point in the image with specific color and intensity values
   d) The geographical location of the satellite

2) In the context of disaster management, satellite imagery is used for ____.
   a) Flood mapping b) Forest fire detection
   c) Earthquake monitoring d) All of the above

3) Which of the following remote sensing sensors typically captures images in the visible and near infrared spectrum?
   a) Thermal Infrared Sensors
   b) LiDAR Sensors
   c) Multispectral Sensors
   d) Radar Sensors

4) What is the main purpose of a "False Color Composite" image in remote sensing?
   a) To visualize the topography of the Earth
   b) To enhance the visibility of certain features like vegetation or water
   c) To reduce the overall noise in the image
   d) To map the elevation of landforms

5) Which method is most commonly used for the geometric correction of satellite images?
   a) Principal Component Analysis
   b) Image Registration
   c) Fourier Transform
   d) K-means Clustering

6) In remote sensing, which type of data is used for land surface temperature estimation?
   a) Thermal Infrared Data  b) Visible Light Data
   c) Microwave Data  d) Ultraviolet Data

7) Which of the following methods is used to enhance the contrast of an image?
   a) Histogram Equalization  b) Image Thresholding
   c) Image Segmentation  d) Edge Detection

8) Which of the following satellite sensors is primarily used for land cover classification?
   a) Landsat  b) RADARSAT
   c) MODIS  d) SPOT

**B) Fill in the blanks:** **04**

1) The process of obtaining information about an object or phenomenon without making physical contact with it is called ____.
2) In satellite remote sensing, the basic unit of a digital image, representing a specific location on the Earth's surface, is called a ____.
3) The electromagnetic spectrum ranges from short wavelengths such as ____ to longer wavelengths such as ____.
4) A satellite image's spatial resolution determines the size of the area covered by one _____ in the image.

**Q.2 Answer the following. (Any Six)** **12**

**a)** What is remote sensing, and how is it used in satellite imaging?
**b)** What is the difference between multispectral and hyperspectral imaging in satellite remote sensing?
**c)** Explain the term "spatial resolution" in the context of satellite imagery.
**d)** What is a "False Color Composite" image, and why is it used in remote sensing?
**e)** Define the term "Georeferencing" in satellite image processing.
**f)** What is image classification in the context of remote sensing, and why is it important?
**g)** What role does "Histogram Equalization" play in satellite image processing?
**h)** Explain the concept of "Change Detection" in remote sensing.

**Q.3 Answer the following. (Any Three)** **12**

**a)** How does remote sensing contribute to Natural Resources Management?
**b)** What is the significance of the "Near-Infrared" band in remote sensing?
**c)** What is the role of "Radar Remote Sensing" in monitoring the Earth's surface?
**d)** Explain the concept of "Supervised Classification" in satellite image processing.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Describe the process of image enhancement and its importance in satellite image processing.

**b)** What is the purpose of "Atmospheric Correction" in satellite image processing?

**c)** Explain the process of image classification in satellite remote sensing. Differentiate between supervised and unsupervised classification methods.

**Q.5 Answer the following. (Any Two)** **12**

**a)** How is "Land Use/Land Cover" classification helpful in environmental monitoring?

**b)** Explain the concept of Remote Sensing and describe its significance in satellite-based imaging. What are the key components involved in a remote sensing system?

**c)** Discuss the concept of change detection in satellite remote sensing. How does it help in monitoring land use/land cover changes over time.

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# M.Sc. (Geoinformatics) (Semester - II) (New) (NEP CBCS)
# Examination: March/April – 2026
# Spatial Modelling & Analysis (2331202)

Day & Date: Saturday 18-04-2026 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) Which of the following is an example of spatial data?
   a) Customer demographics
   b) Sensor readings over time
   c) Geographic coordinates (latitude, longitude) of a location
   d) Transaction amounts in a retail store

2) Which interpolation method is commonly used to create a DEM from contour lines?
   a) Kriging b) Spline
   c) IDW d) All of the above

3) Which function analyzes a cell in relation to its neighboring cells?
   a) Local b) Global
   c) Zonal d) Focal

4) What type of analysis would determine the shortest path between two points?
   a) Slope analysis b) Network analysis
   c) Zonal statistics d) Reclassification

5) What is the primary purpose of creating a DEM?
   a) To represent terrain elevation
   b) To analyze land use
   c) To store satellite imagery
   d) To classify land cover

6) Geographical Information Systems (GIS) are commonly used in spatial data mining to: ____.
   a) Store and analyze spatial data
   b) Encrypt spatial data for privacy protection
   c) Perform web scraping of spatial data
   d) Conduct sentiment analysis on spatial data

7) In spatial data mining, what does the term “spatial-temporal data” refer to?
   a) Data that includes both spatial and temporal components
   b) Data that only contains temporal information
   c) Data stored in spatial databases
   d) Data with irrelevant temporal attributes

8) Which interpolation method is best suited for data with irregular spacing and varying densities?
   a) Spline
   b) Kriging
   c) Nearest Neighbor
   d) All of the above

**B) Fill in the blanks OR Write True/False.** **04**

1) Full form of IDW _____.
2) A _____ is an imaginary line that connects points of equal value.
3) Reclassification involves changing raster cell values to categorize or simplify data.
   a) True
   b) False
4) Inverse Distance Weighting (IDW) assumes that points farther away have a greater influence on the interpolated value.
   a) True
   b) False

**Q.2 Answer the following. (Any Six)** **12**

**a)** Write a note on TIN.
**b)** What is IDW?
**c)** Focal function in spatial analysis.
**d)** What is discrete data?
**e)** Define Interpolation.
**f)** What is Spatial modelling?
**g)** Note on: Kriging
**h)** Watershed Analysis and hydrological analysis.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Give difference between DEM and TIN.
**b)** Explain Types of Spatial Models.
**c)** What is Raster data? Give an idea about Raster datasets and their representation.
**d)** Give in Brief Techniques for reclassifying raster data to create thematic maps.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Mapping Distance and Density in spatial modelling and explain analysing shortest paths.
**b)** Explain in brief Network Analysis.
**c)** Give Methods for representing spatial features and assigning attributes in raster datasets.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Which are the Spatial Analysis Operations and Explain Global Local and Zonal functions.

**b)** What are the conceptual models and How to create conceptual models?

**c)** Explain Inverse Distance Weighting and Kriging for spatial data interpolation.

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# M.Sc. (Geoinformatics) (Semester - II) (New) (NEP CBCS)
## Examination: March/April – 2026
## Introduction to Cartography (2331209)

Day & Date: Tuesday, 21-04-2026 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Multiple choice questions:** **08**

1) _____ is the small scale map.
   a) Wall map b) Atlas map
   c) City map d) a and b

2) The cadastral maps, topographic map are comes under the _____ category.
   a) small scale b) medium scale
   c) large scale d) all of these

3) If we wrap a sheet of paper round the globe in the form of a cylinder, transfer the geographical features of the globe on to it. and then unroll the sheet and lay it on a flat surface, we would get a _____.
   a) Cylindrical b) Azimuthal
   c) Conical d) Equidistant

4) _____ type of map projection is best suited for use as regional or hemispheric maps, but rarely for a complete world map?
   a) Mercator b) Bonee's
   c) Conical d) Cylindrical

5) The _____ may be defined as the representation of the earth's pattern as a whole part of it.
   a) diagram b) scale
   c) metadata d) map

6) The amount of information to be represented on the map depends on _____.
   a) scale b) projection
   c) signs and symbols d) all of these

7) The size of the Indian map drawn on a scale 1:15000000 is _____.
   a) 32 x 30 cm b) 32 x 23 cm
   c) 34 x 30 cm d) 30 x 40 cm

8) A _____defines a reference surface.
   a) Datum b) Geoids
   c) Coordinates d) Spheroid

**B) True/False.** **04**

1) All map projections distort the surface in some way.
2) A map can truly represent the surface of the entire earth.
3) The word 'Map' derived from Mappa of Latin word.
4) Different objects are shown by various colours, the map is known as Chorochromatic.

**Q.2 Answer the following. (Any Six)** **12**

**a)** Verbal Scale.
**b)** NAD 83.
**c)** Types of datum.
**d)** Geodesy.
**e)** Define Cadastral map.
**f)** What is Meridian?
**g)** Define spheroid.
**h)** Define Latitude.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Describe branches of Geodesy.
**b)** Zenithal projection.
**c)** Describe Errors of area and distance measurement.
**d)** Cylindrical projection.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Conical projection.
**b)** Features of geoid.
**c)** History of ancient cartography.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Features of Ellipsoid.
**b)** Principles of Cartography.
**c)** Roll of Islamic cartographer in development in cartographic techniques.

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# M.Sc. (Geoinformatics) (Semester - III) (New) (NEP CBCS)
# Examination: March/April – 2026
# Advanced Techniques In Remote Sensing (2331301)

Day & Date: Friday, 17-04-2026 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) Radar operates in which region of the electromagnetic spectrum?
   a) Visible b) Microwave
   c) Infrared d) UV

2) Which radar provides high-resolution images?
   a) Altimeter b) Scatterometer
   c) Synthetic Aperture Radar d) Radiometer

3) Wien's Law is related to _____.
   a) Rainfall b) Temperature & wavelength
   c) Pressure d) Altitude

4) SEASAT satellite was _____.
   a) Agriculture b) Ocean studies
   c) Urban planning d) Cartography

5) Relief displacement is _____.
   a) Radar image b) Aerial photo
   c) Both a & b d) None

6) PCA is mainly used in _____.
   a) Classification b) Image fusion
   c) Data reduction d) Smoothing

7) Kirchhoff law is related to _____.
   a) Reflectance b) Transmission
   c) Emissivity d) Absorption

8) ERS-1 satellite was launched by _____.
   a) USA b) ESA
   c) USSR d) India

**B) Fill in the blanks or Write True/False:** **04**

a) Side Looking Radar is also called _____.
b) Planck's Law is related to _____.
c) SAR provides high spatial resolution. (True/False)
d) Colour transformation is used in digital image processing. (True/False)

**Q.2 Answer the following. (Any Six)** **12**

**a)** Define Slant Range Distortion.
**b)** What is Rain Mapping Radar?
**c)** Write two applications of Scatterometer.
**d)** Mention two satellites carrying SAR.
**e)** Define PCA.
**f)** What is thermal scanner imagery?
**g)** Write two terrain properties affecting radar return.
**h)** What is relief displacement?

**Q.3 Answer the following. (Any Three)** **12**

**a)** Explain Radar Image Signatures.
**b)** Write a note on SEASAT satellite.
**c)** Explain importance of Image Fusion techniques.
**d)** Describe Thermal Properties of Materials.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Explain Side Looking Radar with neat diagram.
**b)** Discuss Shuttle Radar Missions.
**c)** Explain Planck's Law and Wien's Displacement Law.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Explain Principal Component Analysis (PCA) with example.
**b)** Describe basic Thermal Radiation Principles.
**c)** Explain Radar Image Characteristics.

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# M.Sc. (Geoinformatics) (Semester - III) (New) (NEP CBCS)
# Examination: March/April - 2026
# Advanced Techniques in GIS (2331302)

Day & Date: Monday, 20-04-2026 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) What is a Digital Elevation Model (DEM)?
   a) A model representing geological data
   b) A digital representation of the continuous, variation of relief over space
   c) A 2D representation of population density
   d) A model of transportation networks

2) What does a hillshade map simulate?
   a) Soil quality
   b) How terrain interacts with sunlight
   c) Rainfall distribution
   d) Water drainage paths

3) Which of the following methods is commonly used to derive DEM data?
   a) Stereoscopic aerial photographs
   b) Climate models
   c) Satellite imagery
   d) Road surveys

4) In MCA, what does MODM stand for?
   a) Multi-Option Decision Making
   b) Multi-Objective Decision Making
   c) Multi-Operational Data Model
   d) Multi-Operational Decision Model

5) What is the main objective of Multi-Criteria Decision Making (MCDM)?
   a) To store geospatial data
   b) To evaluate conflicting criteria to make decisions
   c) To visualize spatial data
   d) To conduct demographic analysis

6) Which of the following is NOT an example of an attribute used in multi-criteria Analysis?
   a) Slope
   b) Soil type
   c) Distance from road
   d) Population density

7) What is a major limitation of GIS without Multi-Criteria Analysis (MCA)?
   a) Lack of mapping capability
   b) Inability to store data
   c) Inability to incorporate decision-makers' weightages
   d) Limited spatial data visualization

8) What is the primary aim of GIS in spatial decision-making?
   a) To store geographical data
   b) To provide support for spatial decision-making
   c) To visualize maps
   d) To capture demographic data

**B) Fill in the blanks.** **04**

1) The three steps in decision-making using MCA are _____, _____, and _____.
2) A _____ map in GIS shows the areas that meet the criteria set in an MCA analysis.
3) MCA, the _____ refers to the importance assigned to a criterion relative to others.
4) Multi-Criteria Analysis (MCA) is used to evaluate and prioritize alternatives based on _____ criteria.

**Q.2 Answer the following. (Any Six)** **12**

**a)** Explain the recent trends in Geospatial technology.
**b)** Mobile GIS.
**c)** Discuss the role of criteria weightage in Multi-Criteria Decision Making.
**d)** Rating method.
**e)** Explain the concept of a Digital Elevation Model (DEM).
**f)** What is a Triangulated Irregular Network (TIN)?
**g)** Ranking method.

**Q.3 Answer the following. (Any Three)** **12**

**a)** What is a viewshed analysis, and how is it applied in real-world scenarios?
**b)** Discuss the applications of DEM in civil engineering.
**c)** Explain how fuzzy logic is used in multi-criteria Analysis.
**d)** What is sensitivity analysis, and why is it important in MCA?

**Q.4 Answer the following. (Any Two)** **12**

**a)** How does GIS-based MCA help resolve conflicting objectives in decision-making?
**b)** Discuss the advantages and limitations of using ranking methods for assigning weights in MCA.
**c)** Explain the difference between line of sight and viewshed analysis in spatial analysis.

**Q.5 Answer the following. (Any Two)** **12**

**a)** What are the key components involved in Multi-Criteria Decision Making (MCDM)?

**b)** Discuss the challenges and limitations of using DEM for large-scale projects.

**c)** Describe the applications of MCDA in real-world scenarios. Provide examples from fields like urban planning, environmental management, and disaster management.

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Set **P**

# M.Sc. (Geoinformatics) (Semester - III) (New) (NEP CBCS)
# Examination: March/April – 2026
# Web GIS & Mobile GIS (2331306)

Day & Date: Wednesday, 22-04-2026 Max. Marks: 60
Time: 11:00 AM To 01:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) What does GIS stand for?
   a) Geographic Information System
   b) Global Internet Service
   c) General Information Software
   d) Graphic Integrated System

2) Which protocol is used for internet communication?
   a) FTP b) TCP/IP
   c) HTTP d) All of the above

3) WMS stands for ____.
   a) Web Mapping System b) Web Map Service
   c) Wireless Map Server d) World Map Service

4) Mobile GIS requires which of the following?
   a) GPS b) Wireless network
   c) Mobile device d) All of the above

5) JavaScript is used in Web GIS for ____.
   a) Client-side programming b) Server-side programming
   c) Database management d) Network configuration

6) Google Earth Engine is a platform for ____.
   a) Email services b) Geospatial data analysis
   c) Social networking d) File storage

7) Data warehousing helps in ____.
   a) Storing large volumes of b) Data analysis and retrieval
   c) Data integration d) All of the above

8) An example of Mobile GIS application is ____.
   a) Navigation system b) Word processor
   c) Email client d) Media player

**B) Fill in the blanks OR Write True/False.** **04**

**1)** _____ is the full form of WFS.
**2)** GPS stands for _____.
**3)** Google Earth Engine provides cloud-based geospatial analysis. (True/False)
**4)** WMS delivers vector data for editing. (True/False)

**Q.2 Answer the following. (Any Six)** **12**

**a)** What is network protocol? Give one example.
**b)** Define database server.
**c)** What is Google Earth Engine?
**d)** List two Mobile GIS applications.
**e)** What is Internet GIS?
**f)** Define data mining.
**g)** What is WMS?
**h)** Name two scripting languages used in Web GIS.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Explain the concept of Web GIS with its advantages.
**b)** Describe data mining concepts and their applications in GIS.
**c)** What is Mobile GIS? Explain its key features.
**d)** Explain the difference between WAN and LAN.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Explain database servers in Web GIS. Discuss the role of metadata.
**b)** Describe the applications of Mobile GIS in real-time scenarios.
**c)** Compare client-side and server-side Web GIS frameworks.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Explain Distributed GIS and its applications in data sharing.
**b)** Describe real-time applications of Web GIS with practical examples.
**c)** Compare Map Server and Geo Server in terms of features and applications.

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# M.Sc. (Geoinformatics) (Semester - IV) (New) (NEP CBCS)
# Examination: March/April – 2026
# Natural Resource Management (2331401)

Day & Date: Thursday, 16-04-2026 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) In physiographic soil mapping, which of the following is a primary landform feature?
   a) Soil fertility b) Soil texture
   c) Elevation d) Soil color

2) Which factor is most important in determining soil distribution in physiographic mapping?
   a) Soil texture b) Parent material
   c) Soil color d) Soil pH

3) What is the primary source of energy for marine ecosystems?
   a) Geothermal vents b) Sunlight
   c) Ocean currents d) Tidal forces

4) Watershed management emphasizes ____.
   a) Conservation of water and soil
   b) Improve primary sources of land and soil
   c) Increase production and income of the watershed community
   d) All of the above

5) Which factor most influences the water quality of a watershed?
   a) Vegetation cover b) Soil type
   c) Land use practices d) Climate conditions

6) Which soil type is commonly found in the floodplains of rivers?
   a) Black soil b) Alluvial soil
   c) Red soil d) Laterite soil

7) Which process in the water cycle involves water vapor cooling and forming clouds?
   a) Evaporation b) Precipitation
   c) Condensation d) Infiltration

8) The catchment area of a river is bounded by ____.
   a) Contour line  b) Tributary of a river
   c) Watershed line  d) None of these

**B) Fill in the blanks OR Write True/False.** **04**

1) Sandy soil has low water holding capacity.
   a) True  b) False
2) Mangroves play a crucial role in coastal protection and serve as nursery grounds for marine life.
   a) True  b) False
3) _____ is the process by which water enters the soil.
4) Coral reefs are found only in deep _____ zones.

**Q.2 Answer the following. (Any Six)** **12**

**a)** What is Forest inventory mapping?
**b)** Which colors are in Ocean colour map and what they indicate?
**c)** Types of Soil texture formed by mixture of sand silt and clay.
**d)** Name two remote sensing techniques used in soil moisture mapping.
**e)** What is the role of GIS in forest management?
**f)** What is Watershed length?
**g)** Define bathymetry and its importance in marine studies.
**h)** Mention any two applications of remote sensing in watershed management.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Give different techniques used for sampling.
**b)** Write in detail about components of hydrological cycle.
**c)** What is waterlogged area? Explain its advantages and disadvantages.
**d)** What is salinity? Why there is difference in salinity in different areas?

**Q.4 Answer the following. (Any Two)** **12**

**a)** Describe the application of remote sensing in wildlife habitat suitability analysis.
**b)** Discuss the application of RS & GIS in sustainable watershed management.
**c)** What is physiographic soil mapping?

**Q.5 Answer the following. (Any Two)** **12**

**a)** Water pollution and how it is detected using RS and GIS techniques?
**b)** Write in brief Soil moisture mapping.
**c)** Explain ocean colour mapping its technique and uses.

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**Set P**

# M.Sc. (Geoinformatics) (Semester - IV) (New) (NEP CBCS)
## Examination: March/April – 2026
## Application of Rs and GIS in Disaster Management (2331402)

Day & Date: Saturday, 18-04-2026 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) Which of the following is NOT a type of disaster?
   a) Earthquake b) Volcano
   c) Migration d) Flood

2) What is the main cause of ozone layer depletion?
   a) $CO_2$ emissions b) Sulphur dioxide
   c) CFCs d) Methane

3) The Normalized Difference Vegetation Index (NDVI) is most commonly used to assess: _____.
   a) Earthquake intensity b) Drought conditions
   c) Volcanic activity d) Flood water depth

4) The vegetation index is used to following band ____.
   a) Green and red b) Red and NIR
   c) blue and red d) Red and SWIR

5) GIS-based flood modeling typically incorporates all EXCEPT: _____.
   a) Topographic data b) Land use patterns
   c) Rainfall intensity d) Soil mineral composition

6) Which of the following is NOT a primary use of GIS in disaster management?
   a) Hazard zonation mapping b) Early warning systems
   c) On-site medical treatment d) Damage assessment

7) Remote sensing is particularly useful for monitoring which type of disaster?
   a) Earthquakes b) Landslides
   c) Industrial accidents d) All of the above

8) Which satellite data would be most appropriate for monitoring volcanic ash clouds?
   a) Thermal infrared b) Microwave
   c) Gravimetric d) Sonar

**B) Fill in the blanks.** **04**

1) _____ is the GIS technique used to combine multiple spatial layers for vulnerability assessment.
2) ____ Remote sensing using _____ band can penetrate clouds, making it useful for flood monitoring during rainy seasons.
3) The _____ Index is commonly used in remote sensing to monitor drought conditions.
4) GIS helps in identifying _____ zones for proactive disaster management.

**Q.2 Answer the following. (Any Six)** **12**

**a)** How can GIS assist in evacuation planning for cyclone-prone areas?
**b)** How is GIS used in delimiting drought-prone areas?
**c)** Briefly explain coastal zone management strategies.
**d)** Describe the impact of volcanic hazards with an example.
**e)** Explain the application of GIS in cyclone damage assessment.
**f)** Explain how GIS can be used for earthquake vulnerability assessment.
**g)** Write a short note on the causes and effects of landslides.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Discuss the application of remote sensing and GIS in landslide hazard zonation, including the parameters used and methods of analysis.
**b)** Explain how space-time integration in GIS helps in flood forecasting and management. Provide examples of relevant data layers.
**c)** Discuss the different types of drought and factors influencing them.
**d)** Remote sensing and GIS have revolutionized disaster management. Elaborate this statement with specific examples from different types of disasters discussed in the course material.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Describe the methodology of flood risk assessment using GIS.
**b)** Discuss detail cycle of Disaster management.
**c)** Write a detailed note on how GIS case studies have contributed to our understanding of disaster patterns and improved management strategies, with reference to at least three different types of disasters.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Discuss the challenges and limitations in applying remote sensing and GIS for disaster management in developing countries.
**b)** Discuss the implications of global warming and sea level rise as atmospheric disasters, and the role of GIS in their mitigation.
**c)** Critically analyze the role of geospatial technologies in all phases of disaster management (preparedness, response, recovery, and mitigation) with appropriate case studies.

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Set **P**

# M.Sc. (Geoinformatics) (Semester - IV) (New) (NEP CBCS)
# Examination: March/April – 2026
# Land Evaluation (2331405)

Day & Date: Tuesday, 21-04-2026 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Choose correct alternative. (MCQ)** **08**

1) Land evaluation is primarily carried out to assess ____.
   a) Market value of land
   b) Suitability of land for specified uses
   c) Political ownership of land
   d) Historical importance of land

2) The FAO framework for land evaluation is mainly used for ____.
   a) Urban traffic analysis
   b) Agricultural land suitability assessment
   c) Population density analysis
   d) Meteorological forecasting

3) Land capability classification is based mainly on ____.
   a) Socio-economic conditions
   b) Physical land characteristics and limitations
   c) Political boundaries
   d) Market price of crops

4) A thematic layer in GIS represents ____.
   a) Only attribute tables
   b) A specific type of spatial information such as soil or slope
   c) Programming code
   d) Database keys only

5) Groundwater suitability mapping commonly uses ____.
   a) Rainfall, geology, and lineament density
   b) Cinema Hall density
   c) Language distribution
   d) Vehicle registration data

6) Agroclimatic suitability for crops mainly depends on ____.
   a) Temperature, rainfall, and growing period
   b) Historical buildings
   c) Literacy rate
   d) Political parties

7) For non-agricultural land evaluation, a key example is ____.
   a) Crop rotation
   b) Tourism development planning
   c) Seed selection
   d) Fertilizer scheduling

8) In GIS-based land suitability analysis, “integration” of layers refers to ____.
   a) Physically merging maps by hand
   b) Combining multiple thematic layers using specified rules
   c) Deleting all raster data
   d) Only attribute editing

**B) Fill in the blanks OR Write True/False.** **04**

**1)** Land evaluation links land characteristics with the requirements of _____.
**2)** Land capability classification ignores soil erosion risk. (True or False)
**3)** _____ maps are commonly used to assess slope for land suitability.
**4)** Tourism development planning can be a part of non-agricultural land evaluation. (True or False)

**Q.2 Answer the following. (Any Six)** **12**

**a)** Define land evaluation.
**b)** State any two objectives of land evaluation.
**c)** Write any two principles of land evaluation.
**d)** Define land capability.
**e)** State any two advantages of using GIS in land suitability analysis.
**f)** Write any two factors affecting suitability for tourism development.
**g)** Define agroclimatic land suitability.
**h)** State any two examples of non-agricultural land uses considered in land evaluation.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Explain the relationship between land evaluation and land use planning.
**b)** Describe the concept of thematic layers and their role in land suitability analysis.
**c)** Explain the concept of ranking and rating scales in suitability classification.
**d)** Discuss the importance of watershed considerations in land use planning.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Discuss the principles and process of land evaluation with a neat flow description.
**b)** Explain the steps involved in developing a soil erosion model for land evaluation.
**c)** Discuss the database requirements and criteria for grazing land suitability assessment.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Explain the procedure for preparing a land suitability map for an irrigated crop using GIS and remote sensing.

**b)** Discuss land evaluation for wildlife conservation with reference to database, criteria, and decision-making.

**c)** Describe the method of integrating multiple thematic layers (soil, slope, land use, etc.) for tourism development planning.

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Set **P**

# M.Sc. (Geoinformatics) (Semester - IV) (New) (NEP CBCS)
# Examination: March/April – 2026
# Application in Hydrology and Agriculture (2331407)

Day & Date: Tuesday, 21-04-2026 Max. Marks: 60
Time: 03:00 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

**Q.1 A) Multiple Choice Questions.** **08**

1) The component of the hydrologic cycle that describes movement over the surface is: ____.
   a) Infiltration b) Runoff
   c) Recharge d) Evaporation

2) A hydrograph primarily represents: ____.
   a) Water quality
   b) rainfall vs temp
   c) Stream discharge over lime
   d) groundwater table

3) _____ is spatial resolution in IRS-LISS III.
   a) 5.8 m b) 72 m
   c) 36 m d) 23.5 m

4) _____ appear Red color in FCC image in remote sensing data.
   a) Waterbody b) Built-up
   c) Waste land d) Vegetation

5) Which is the deepest ocean in the world?
   a) Indian b) Atlantic
   c) Pacific d) Artic

6) Which is following band useful for the measurement of urban heat?
   a) Visible b) Microwave
   c) Thermal d) Infrared

7) Soil _____ is used in determining crop yield potential.
   a) Structure b) Texture
   c) Moisture d) Nutrient

8) The process of water entering the soil surface is known as: ____.
   a) Condensation b) Evaporation
   c) Runoff d) Infiltration

**B) Write True/False:** **04**

1) Natural diversity of biodiversity refers to the range of different habitats and ecological processes on Earth?
2) A watershed includes everything within its borders, including land, animals, and people.
3) The decomposed material in the soil that improves water-holding capacity, nutrient availability, and soil structure.
4) Dam is a key component of a watershed?

**Q.2 Answer the following. (Any Six)** **12**

**a)** Bathymetry.
**b)** What is Resolution?
**c)** Spectral signature.
**d)** Bifurcation ratio.
**e)** Biomass.
**f)** Tropical forest.
**g)** NOAA.
**h)** Water lagging.

**Q.3 Answer the following. (Any Three)** **12**

**a)** Open well inventory.
**b)** Land use land cover.
**c)** Relief aspects of basin.
**d)** NDWI.

**Q.4 Answer the following. (Any Two)** **12**

**a)** Water conservation techniques using GIS.
**b)** Oceanic ecosystem.
**c)** Crop disease mapping.

**Q.5 Answer the following. (Any Two)** **12**

**a)** Ground water potential zone mapping.
**b)** Sait water intrusion.
**c)** Application in Soil moisture mapping using LISS III.