KATHMANDU UNIVERSITY
End Semester Examination
January/February 2024

Level : B.Sc./B.Tech.
Year : III
Time : 2 hrs. 30mins.

22 JAN 2024

Course : ESEE 302
Semester : I
F. M. : 55

SECTION "B"
[3Q × 8 = 24 marks]

Attempt *ANY THREE* questions.

1. What is Digital Elevation Model (DEM)? How it is created and what are its advantages? Discuss about the derivatives of DEM. [2+2+4]

2. Discuss the advantages and limitations of using remote sensing techniques compared to traditional ground-based data collection methods. How might it contribute to addressing global challenges such as climate change or disaster management? [4+4]

3. What is GPS? How does it work? What are the various types of errors related to GPS data? [2+2+4]

4. What are the various coordinate and projection systems used in GIS System? What are the essential components of a map? [2+3+3]

SECTION "C"
[4 Q × 3 = 12 marks]

Attempt *ANY FOUR* questions.

5. Write about various components used for interpretation of satellite images.

6. Discuss about various types of platforms.

7. Write about the major software used in GIS?

8. Define sensors. What are the characteristic of sensors?

9. Describe raster and vector data model in relation to feature representation with sketch.

SECTION "D"

10. Differentiate between *ANY TWO* of the following. [2Q × 3 = 6]
    a. Hierarchical and Relational database management system
    b. Whiskbroom and Pushbroom scanners
    c. Geo-stationary and Sun-synchronous Orbits

11. Give reasons of the following. [2Q × 2 = 4]
    a. Poor project management leads the GIS project to failure.
    b. Database management is important in spatial analysis.

12. Write Short notes on *ANY THREE* the following [3Q × 3 = 9]
    a. Types of Cameras in Remote Sensing
    b. Shape file and KML
    c. Map audience
    d. Buffer and Clip tool

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Registration No.:

Date :

SECTION "A"
[20Q. × 1 = 20 marks]

Choose and encircle the most appropriate option from each set of choices.

1. By 'Spatial data' we mean data that has .....
   a. Complex values b. Graphic values c. Positional values d. Decimal values

2. DBMS stands for .....
   a. Database Monitoring System b. Database Management System
   c. Database Monitoring Service d. Database Management Service

3. ..... resolution refers to the size of the smallest object that can be resolved on the ground.
   a. Spatial b. Temporal c. Spectral d. Radiometric

4. In a vector graphics the coordinate (x_1, y_1) is equal to (x_n, y_n) when the geometry is
   a. Polyline b. Line c. Polygon d. None

5. .....is multispectral image interpretation, used to reveal poorly visible features to a human eye using the standard visual RGB band range (red, green, and blue).
   a. False Color Composite b. Gray Scale Composite
   c. True Color Composite d. Blue Band Composite

6. In which type of map projection the entire earth surface is divided into zones.....
   a. Poly conic projection b. Cylindrical Projection
   c. Lambert-Azimuthal Projection d. Transverse Mercator Projection

7. ..... is a process of defining a zone of specified distance around the feature, and used to evaluate the impact of the geographic feature on its surroundings.
   a. Digitizing b. Geo-processing c. Geo-referencing d. Buffering

8. ..... is the file format of Google earth maps.
   a. .ship b. .prj c. .vrt d. .kmz

9. The satellite navigation system developed by china is .....
   a. Galileo b. Explorer c. Compass d. Glonass

10. The Light wave just beyond the visible spectrum of light is .....
    a. X-ray b. Microwave c. Ultraviolet ray d. Infrared

11. Which of the following indicates the functioning of the sensor?
    a. Transmits Energy
    b. Absorbs wave length
    c. Sensitive to wave length
    d. Reflects energy

12. Remote sensing uses which of the following waves in its procedure?
    a. Electric field
    b. Sonar waves
    c. Gamma-rays
    d. Electro-magnetic waves

13. Which of the following projection has focus from pole to pole?
    a. Gnomonic projection
    b. Stereographic projection
    c. Conic projection
    d. Orthographic projection

14. Which of the following is not a classification of scattering principle?
    a. Faraday scattering
    b. Rayleigh scattering
    c. Mie scattering
    d. Non-selective scattering

15. Assemblage of one vertical and two oblique's photographs taken at the same time is .....
    a. Trimetrogon
    b. Convergent
    c. Divergent
    d. High Oblique

16. Data of Data is .....
    a. database
    b. field
    c. record
    d. metadata

17. Which of the following is not the way to represent map scale?
    a. Verbal scale
    b. Graphic Scale
    c. Ratio scale
    d. Linear scale

18. Which of the following statement is **INCORRECT**?
    a. Surface roughness is inversely proportional to reflectance
    b. As the depth increases in the water, reflectance increases.
    c. The coarse soil will absorb more energy and appears darker.
    d. All of above

19. TIN stands for
    a. Triangulated Irregular Network
    b. Temporal Interface Network
    c. Temporal Irregular Network
    d. Temperature Interface Node

20. Lines of latitude that measure locations in the North South direction on the geographic coordinate system is
    a. Meridians
    b. Parallels
    c. Equator
    d. Major axis