KATHMANDU UNIVERSITY
End Semester Examination
June/July, 2023

Marks Scored:

Level : B.Tech.
Year : III

Course : ENVS 306
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date 13 JUL 2023

SECTION "A"
[20Q. × 1 = 20 marks]

Encircle the most appropriate option from each set of choices.

1. 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

2. .....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

3. Among the following which do not come under the segments of GPS?
   a. Space b. Control c. Compiler d. People

4. The multipurpose map with cultural and physical details of an area is called.....
   a. Topographic maps
   b. Cadastral maps
   c. Thematic maps
   d. Contour maps

5. .....feature in a map represents the lowest elevation.
   a. Highways b. Forest c. River d. Hills

6. The number of detectors in a satellite of 25 m spatial resolution consists of the scanner of swath 50 km is .....
   a. 5000 b. 80 c. 3000 d. 2000

7. Digitizing roads from a scanned map leads to .....
   a. Raster Layer
   b. Vector Layer
   c. Union
   d. Object Overlay

8. ..... 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

9. Among the following the correct set of remote sensing classification can be given as.....
   a. active, orbital
   b. active, passive
   c. passive, orbital
   d. orbital, satellite

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

11. The world first artificial satellite launched by Russia in 1957 is .....
    a. Sputnik b. Explorer c. Apollo d. Landsat

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

13. Which of the following promotion preserve angles?
    a. Cylindrical b. Planar c. Conical d. Azimuthal

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

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. DEM stands for .....
    a. Database Evaluation Monitoring
    b. Database Evaluation Model
    c. Digital Elevation Monitoring
    d. Digital Elevation Model

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

18. A GIS function that moves the view of the map, so the boundaries of layers are visible on the screen is.....
    a. zoom to layers
    b. clip
    c. buffer
    d. query builder

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

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

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

Course : ENVS 306
Semester : II
F. M. : 55

SECTION "B"

(Long answer questions)
[3Q. × 8 = 24 marks]

Attempt *ANY THREE* questions.

1. Explain the concept of spatial data accuracy in GIS and discuss the factors that influence it. Discuss the relative strength and weakness of the two spatial data models in GIS. [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. Discuss about Image processing and Image enhancement. What are the key elements of Image Interpretation? Explain. [3+5]

4. What are the sensors and scanners? Define the Resolutions of sensors and its types. Discuss how those resolutions define the feature representation in remote sensing. [2+2+4]

SECTION "C"

(Short answer questions)
[4Q. × 3 = 12 marks]

Attempt *ANY FOUR* questions.

5. The curve in the figure below provides the graphical representation of the spectral response. Answer the following question based on the curve.

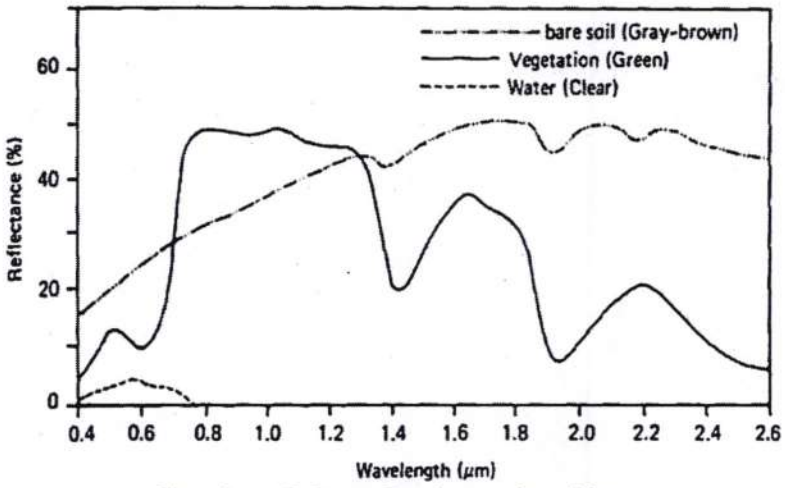

Figure: Spectral Reflectance Curve for vegetation, soil &water

i. Write down the variables appropriate for X-axis and Y-axis with appropriate units.
ii. What Spectral reflectance curve?
iii. Explain why bare soil has higher value in Y-axis compared to vegetation as the value in X-axis increases.

6. How can you derive terrain attributes like contours or aspect from the DEM?

7. Analyze the ethical and privacy considerations associated with the use of GIS and remote sensing technologies.

8. What are major components of GIS?

9. Discuss about three segments of GPS.

SECTION "D"

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

11. Give reasons of the following. [2Q × 2 = 4]
    a. Poor project management leads the GIS project to failure.
    b. Vantage point plays vital role on the geometry and scale of a photo.

12. Write short notes on *ANY THREE* of the following. [3Q × 3= 9]
    a. DBMS
    b. Types of map projections
    c. Map audience
    d. Electromagnetic radiation (EMR)