REV-01
MEV/06/11

2023/06

SET A

M.Sc. ENVIRONMENTAL Sc.
FOURTH SEMESTER
GEOINFORMATICS: APPLICATIONS IN MAJOR AREAS
MEV - 403C
[USE OMR FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 min. **Marks: 20**

Choose the correct answer from the following: ***1X20=20***

1. Which of the following LULC falls under Level-II category of NRSC LULC classification?
   a. Crop Land
   b. Fallow
   c. Plantation
   d. All the above

2. What level of LULC classification is usually carried out using data between 1:20,000 to 1:80,000 scale?
   a. Level-I
   b. Level-II
   c. Level-III
   d. Level-IV

3. Which interpretation keys can be used to identify evergreen forest in a FCC image?
   a. Tone- dark red; Texture- coarse; Pattern- contiguous; Shape- irregular
   b. Tone- pink red; Pattern- contiguous; Shape-regular
   c. Tone- greenish red; Texture- smooth; Pattern- scattered; Shape- irregular
   d. Tone- red; Pattern- smooth; Shape-regular

4. Which remote sensing satellite can be used in earth quake monitoring?
   a. MODIS
   b. INSAT
   c. LANDSAT
   d. PALSAR

5. What is the ideal spatial resolution for landscape level studies?
   a. 100m
   b. 20-30m
   c. less than 10m
   d. 30-50m

6. Which data layers will be most useful in identifying vulnerable landslide areas?
   a. Slope, elevation, soil type, drainage and LULC
   b. Forest density, elevation and buildings
   c. Population density, LULC, drainage
   d. None of the above

7. Unused or leftover shifting cultivation areas are considered as
   a. Scrub forest
   b. Scrub land
   c. Wasteland
   d. Uncultured land

8. Which type of data is useful in disaster response and recovery?
   a. Satellite imageries
   b. Aerial photographs
   c. UAV data
   d. All the above

9. Satellite data with 2-6m spatial resolution is suitable for
   a. Cartography
   b. Urban planning
   c. Both the above
   d. None of the above

10. Data from which satellite can be used to monitor fire.
   a. MODIS
   b. SERVIR
   c. AFIS
   d. all the above

11. In GIS urban planning, analysis, linking spatial data and attribute data leads to formation of _____
   a. Administration
   b. Topology
   c. Jurisdiction
   d. Land cover

12. How GIS is helpful in flood management?
   a. Create map of flood occurring places
   b. Use geographical aspects of drainage
   c. Create flood simulation models
   d. All the above

13. Which of the following software's are used for developing vehicle route?
   a. Autodesk Revit
   b. STAAD Pro
   c. GIS
   d. Remote Sensing

14. Applications of GIS in Education includes _____
   a. Facilities planning activities encompassing room capacities
   b. Technology infrastructure, emergency preparedness and campus safety
   c. Administrative activities include managing alumni networks, recruiting students, and constructing new buildings
   d. All of the above.

15. GIS can help to identify areas of conflict of land development with the environment by which of the following technique?
   a. Manipulate
   b. Spatial Query
   c. Overlay Analysis
   d. All of these

16. The first objective of DTM interpretation is the derivation of _____ parameters.
   a. Geomorphometric
   b. Geological
   c. Graphical
   d. Geometric

17. If you are making a web map of sampling locations, streams and watershed areas, in what order would you place the layers on the map?
   a. Sampling locations, wetland areas, streams
   b. Streams, wetland areas, sampling locations
   c. Sampling locations, streams, watershed areas
   d. It doesn't matter what order they are in.

18. The various applications in water resources wherein remote sensing may substitute the conventional methods are:
   a. Rainfall Estimation, forecasting and monitoring.
   b. Evaporation and evapotranspiration studies
   c. Hydrologic modeling – rainfall – runoff models etc.
   d. All of the above

19. What is the advantage of multiple flow direction algorithm?
    a. Unlike the D8-algorithm they can be used more than once
    b. They are based on random numbers
    c. They allow water drainage to more than one adjacent cell
    d. They are particularly fast.

20. What are the helping factors of watershed management?
    a. To cope with country's energy crisis
    b. Appropriate funds must be allocated
    c. Evolve a long watershed policy for conserving the country's watershed
    d. All of the above

-- --- --

Descriptive

Time : 2 hrs. 30 mins. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. What is LULC? Why LULC classification is important? Critically discuss the USGS Anderson classification or NRC LULC 50K classification system. 1+2+7 =10

2. Write short note on *(any two)* 5+5=10
   a. Importance of LULC study in earth's resource management
   b. Criteria for USGS LULC classification scheme
   c. Type of data used in Level I, II, III & IV classification

3. Critically discuss how different tools and models of GIS can be used for environment and climate change monitoring. Give suitable examples in support of your answer. 10

4. Critically discuss the role of geoinformatics in hazards and disaster management with suitable examples. 10

5. Discuss the application of GIS in planning and development. How does GIS help in planning smart cities? 5+5=10

6. Explain the following: 5+5=10
   a. Role of GIS in health sector
   b. Remote sensing applications in traffic management

7. Explain the applications of remote sensing in water resources. 10

8. "Remote sensing and GIS have emerged as most powerful tools for morphometric analysis for the development of the regional hydrological models for solving various hydrological problems." Elucidate the statement with examples. 10

= = *** = =