

**MA/M.Sc. GEOGRAPHY
THIRD SEMESTER
GEO-INFORMATICS
MGE-303**

Duration: 3 Hrs.

Marks: 70

PART : A (OBJECTIVE) = 20
PART : B (DESCRIPTIVE) = 50

[PART-B : Descriptive]

Duration: 2 Hrs. 40 Mins.

Marks: 50

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

1. What are the various components of GIS? Discuss the role of each component. (2+8=10)
2. What is Digital Image Processing (DIP)? Describe any one DIP technique in details. (2+8=10)
3. What are the various data structures employed in GIS? Describe the geometric properties of any one of them. (2+8=10)
4. What are the various elements of map layout? Prepare a standard map layout with a theme for an imaginary area. (4+6=10)
5. What is aerial photography? What is stereo pair? What are different types of aerial photographs? Discuss the history and development of aerial photography. (1+1+6+2=10)
6. What is GPS? Discuss the components and working principle of GPS. What is GNSS? Discuss the characteristic features of IRNSS. (1+6+1+2=10)
7. Define orbit. What are different types of orbits? Highlight the important features of geostationary satellites. What is Row and Path? (1+3+4+2=10)
8. What is spectral signature and spectral reflectance curve? Write the significance of spectral signature in remote sensing. Discuss the salient features of spectral signature for vegetation and soil. (2+2+6=10)

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[PART-A : Objective]

Choose the correct answer /option from the following :

1×20=20

1. Who is regarded as the 'father of modern GIS'?
 - a. Waldo Tobler
 - b. Peter Burrough
 - c. Jack Dangermond
 - d. Roger F. Tomlinson
2. Which one of the following is having vector data structure?
 - a. Satellite data in digital mode.
 - b. Scanned map.
 - c. Triangulated Irregular Network.
 - d. Photograph by a digital camera.
3. What does RMS error in georeferencing signify?
 - a. A measure of displacement of tie points.
 - b. A measure of connectivity.
 - c. Error in scale of map.
 - d. Error in area.
4. How many spectral bands are there in IRS-1C LISS-3 satellite data?
 - a. 2
 - b. 3
 - c. 4
 - d. 5
5. What is the decimal degree of 90°15'?
 - a. 90.15
 - b. 90.50
 - c. 90.25
 - d. 90.35
6. What is the dimension of line feature?
 - a. 0
 - b. 1
 - c. 2
 - d. 3
7. Which one of the following statement is true?
 - a. WGS84 is a geoid.
 - b. Raster data has topology.
 - c. Assam falls in UTM Zone 46 N.
 - d. Survey of India is not a data source for GIS.
8. How many raster cells are there to cover one hectare of land, if the spatial resolution of raster is 10 m?
 - a. 10
 - b. 100
 - c. 1000
 - d. 10,000
9. 256 grey levels are found in:
 - a. 7 bit image.
 - b. 8 bit image.
 - c. 10 bit image.
 - d. 16 bit image.
10. Whose statistical contribution is associated with digital image processing technique?
 - a. R. Navalgund
 - b. U. R. Rao
 - c. P. S. Roy
 - d. P. C. Mahalanabis
11. Which of the following nation has developed MSAS augmentation system?
 - a. USA
 - b. India
 - c. Japan
 - d. Russia
12. Which of the following satellite have maximum spatial resolution?
 - a. IKONOS
 - b. SPOT 7
 - c. LISS III
 - d. LANDSAT TM
13. Which of the following satellite scanner(s) is/are push broom scanner?
 - a. LISS series
 - b. WiFS
 - c. SPOT-1
 - d. All the above
14. Choose the correct one:
 - a. METEOSAT and INSAT are geostationary satellite.
 - b. LANDSAT and NOAA are sun synchronous satellite.
 - c. Near polar orbits are inclined at 90° - 100°.
 - d. All the above.

15. Which portion of Electromagnetic Spectrum is most suitable for vegetation study?
- Red
 - IR
 - NIR
 - MIR
16. Which navigation system is characterized by 24 satellites, 6 orbital planes, positioned at 20,200 km, inclined at an angle of 55°?
- Galileo
 - GLONASS
 - NAVSTAR
 - QZSS
17. Which image elements are arranged in ascending order of degree of complexity?
- tone-shape-pattern-association.
 - pattern-tone-association-shape.
 - shape-association-tone-pattern.
 - association-pattern-shape-tone.
18. Which of the following is image enhancement technique?
- Spectral operation.
 - Local operation.
 - Point operation.
 - All the above.
19. Which of the following classifier uses mean value of pixels of training sets?
- Parallelepiped classifier.
 - Minimum distance classifier.
 - Maximum likelihood classifier.
 - None of the above.
20. In electromagnetic spectrum, water strongly absorbs in:
- MIR
 - Blue
 - FIR
 - None of the above

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UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA



[PART (A) : OBJECTIVE]

Duration : 20 Minutes

Serial no. of the
main Answer sheet

Course :

Semester : Roll No :

Enrollment No : Course code :

Course Title :

Session : 2017-18 Date :

Instructions / Guidelines

- The paper contains twenty (20) / ten (10) questions.
- Students shall tick (✓) the correct answer.
- No marks shall be given for overwrite / erasing.
- Students have to submit the Objective Part (Part-A) to the invigilator just after completion of the allotted time from the starting of examination.

| Full Marks | Marks Obtained |
|------------|----------------|
| 20 | |

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Scrutinizer's Signature

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Examiner's Signature

.....
Invigilator's Signature