KATHMANDU UNIVERSITY
End Semester Examination
January/February 2025

Marks Scored:

Level : B.E.
Year : IV

Course : GEOM 406
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date : 07 FEB 2025

SECTION "A"

[20Q. × 0.5 = 10 marks]

Choose the most appropriate answer from the given alternatives and ***encircle****.*

1. Data on _____ SDI are more detailed than National SDI.
   a. Regional SDI b. Global SDI c. Local level SDI d. None of the above.

2. SDI systems sharing a search engine based on same ontology and gazetteer is an example of:
   a. Technical interoperability
   b. Semantic interoperability
   c. Organizational Interoperability
   d. Logical interoperability

3. HTTP is a
   a. OGC standard b. W3C Standard c. ISO Standard d. TC211 Standard

4. Simple Feature Access (SFA) does not support which of the following?
   a. Point, Line String, Polygon geometry types
   b. Multipoint, MultiLineString, MultiPolygon geometry types
   c. WKT representation
   d. 3D geometries (PointZ, LineStringZ)

5. Which of the following data format stores geometry and its associated properties (i.e. attributes) of each geospatial feature separately in form of <tags>?
   a. gml b. geojson c. shapefile d. html

6. Which of the following HTTP requests is used to create new resources in server:
   a. GET b. PUT c. POST d. CREATE

7. Which of the following statements is not true about web services:
   a. It supports direct communication between clients and server in internet
   b. It provides access to underlying raw data
   c. It is a type of API (Application program interface) to support application development.
   d. It is used for real time data access from server only.

8. Which of these cannot be the response of WFS request?
   a. .dat file b. .gml file c. .geojson file d. .kml file

9. Which of the following OWS request give the overview details of services and data available from the OWS server:
   a. DescribeFeature b. GetFeature c. GetCapabilities d. GetInfo

10. DescribeLayer is parameter of which OWS service request:
a. WCS b. WMS c. WPS d. WFS

11. DescribeCoverage gives information about the structure of coverage including its format, etc. In which format is the response of DescribeCoverage request obtained:
a. GML b. HTTP c. XML d. TIFF

12. Which of the following software supports metadata validation tool:
a. GeoNetwork b. Geoserver c. Geonode d. CKAN

13. Which of the following is not a common element of metadata record?
a. Point of contact b. Lineage c. Media Type d. Date

14. Which of the following manages and maintains 'Directory of servers' in a geospatial data catalogue:
a. Catalog User
b. Catalog Administrator
c. Gateway Manager
d. Metadata originator

15. GeoSUR is an example of
a. Regional Level SDI
b. Global Level SDI
c. State Level SDI
d. Local SDI

16. Which of the following functionalities is not common in all three - GeoNode, GeoServer and GeoNetwork? .
a. Metadata Harvesting
b. OGC Web Services
c. Data Publishing
d. GeoStories Creation

17. Which of the following metadata standards is an example of ISO profiles:
a. ISO 19139 b. ISO 19115 c. FCDC d. Inspire Metadata

18. Which of the following is true about Nepalese NSDI?
a. The NSDI policy and act of Nepal were drafted and published in 2002.
b. NSDI concept was introduced in Nepal for the first time on 12th Periodic plan in 2002.
c. The current NSDI data portal of Nepal is operated by Geographic Information Infrastructure Division unit under Ministry of Land Management, Cooperatives and Poverty Alleviation.
d. Census data is not at all available in current NSDI portal of Nepal.

19. Which of the following is not one of the 14 fundamental datasets of SDI specified by UNGGIM:
a. Land Parcels
b. Landslide risk maps
c. Population Distribution
d. Functional Areas

20. Spider Open SDI Toolkit is :
a. A software for creating open SDI
b. Is a learning platform to teach open SDI along with teaching methods
c. Web based application for SDI implementation
d. A global open SDI platform sharing free datasets

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SECTION "B"
[6Q. × 4 = 24 marks]

Attempt *ANY SIX* questions.

1. Describe in brief different components of SDI. [4]

2. Give some suggestions on how an organization should create and maintain their metadata, mentioning the issues to be taken care of during the process. [4]

3. We looked at different examples of NSDI in our class including their organizational structure. In your opinion, to create a successful SDI what kind of organizational structure is necessary, you can describe your answer by giving examples of some successful SDI also. [4]

4. Explain the working mechanism of geospatial data catalogue including its key components. [4]

5. After reviewing different geoportal software in the SDI seminar, which two software do you recommend for SDI development and why? Discuss the strengths and limitations of the software. [4]

6. How do you view Nepal's current SDI, do you think it is sufficient or effective? Share your opinion by addressing its technical, organizational, policy or any other aspects. [4]

7. Write short notes on: ***(ANY TWO)*** [2×2=4]
   a. Thesauri and Ontology for SDI.
   b. Existing Metadata Standards
   c. Global and regional level SDI
   d. Recent developments in SDI

SECTION "B"
[2Q. × 8 = 16 marks]

Attempt *ANY TWO* questions.

8. Policy is a key component of SDI. In your opinion, why is it important to have a well-defined policy and legal framework for SDI operations? Based on our class discussion on the Inspire Data Directive as well as policies for SDI, describe the different types of policies required for an SDI. [3+5]

9. There have been many global debates about sharing open data through SDI for free. Do you think sharing data openly through NSDI is a good idea. Support your answer with clear arguments. (you can relate the presentation from SDI and include examples of SDI's too)

   Describe the key features/architecture of a Geoportal in SDI. In your opinion, what functionalities should a geoportal have to ensure user interactivity and ease? [4+4=8]