Marks Scored:

KATHMANDU UNIVERSITY
End Semester Examination
March/April, 2017

Level : B. E.
Year : IV

Course : GEOM 405
Semester : I

Exam Roll No. :

Time : 30 mins.

F. M. : 20

Registration No. :

Date MAR 30 2017

SECTION "A"
[20 Q. × 0.5 = 10 marks]

Choose the most appropriate answer among the given choices.

1. Distributed GIS is
   a. An integrated client/server computing system
   b. A web-based interactive GIS
   c. A cross-platform and interoperable internet GIS
   d. All of the above option is true

2. URLs are
   a. Uniform Resource Locator
   b. Call the web page's address
   c. Typically type it into your web browser's location bar
   d. All of the above

3. Client/Server approach is
   a. Servers are requesting information
   b. Clients are requesting information and servers are responding to each requests
   c. Clients are responding to each requests
   d. All of the above

4. Thick (or Fat) Clients mean
   a. Most of the processing is done on the server side
   b. Processing is done as in Thin Clients
   c. Processing is done on the client side
   d. None of above

5. XML is
   a. Database language
   b. Data description language
   c. Object oriented data language
   d. Structured data sharing and exchange language

6. WMS delivers
   a. XML b. GML c. Map Image d. SQL

7. General scripting language in a web page is
   a. Python b. JSON c. JavaScript d. CSS

8. SRID for WGS84 Geographic Coordinates System is
   a. 32645 b. 4236 c. 4326 d. 4362

9. EPSG is used to
   a. Define styling
   b. Define Spatial Reference System (SRS)
   c. Convert reference
   d. All

10. GeoServer has been written in
    a. JavaScript b. Python c. Java d. C++

11. Main work of GeoServer is
    a. Only to connect with spatial database
    b. To render maps
    c. To connect spatial database, produce maps and publish
    d. Publishing the maps only

12. Free and Open Source GIS means
    a. It bears costs
    b. Free to use and source code is not available
    c. Needs license to use
    d. Free to use and source code is available

13. Open Geospatial Consortium (OGC) includes
    a. GIS companies
    b. Universities
    c. Government Agency
    d. a, b and c

14. OpenLayers scripts can be written with
    a. Java b. JavaScript c. Python d. JSON

15. Which of the following is not OGC standards service
    a. WMS b. WFS c. WCS d. WDS

16. Which of the following is not XML based
    a. GML b. KML c. JSON d. KMZ

17. Which of the following is not True
    a. WMS interface has GetCapabilities, GetMap and GetFeatureInfo Operation
    b. GetFeatureInfo returns information on published map feature
    c. GetFeature is one of the WFS interface operation and returns rendered map image
    d. GetCapabilities returns about capabilities document with layer information

18. Web maps are rendered with
    a. Web Coverage Service
    b. Style Layer Descriptor
    c. Web Feature Service
    d. Web Map Service

19. Two information systems are interoperable, if they are
    a. Able to Access functions seamlessly
    b. Able to Transfer data seamlessly
    c. Both a and b
    d. Compatible

20. Which of the flowing is not Server Side Scripting
    a. PHP b. Python c. Java d. JavaScript

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Level : B. E.
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Time : 2 hrs. 30 mins.

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F. M. : 40

SECTION "B"
[6 Q. × 4 =24 marks]

Attempt *ANY SIX* questions.

1. What is Client/Server approach? Differentiate between thick and thin client server architecture with appropiate examples.

2. Describe the need of Open Standard and OGC? If your data is very sensetive in data dissemination which web service will you choose for web mapping. Elucidate.

3. Why do we need interoperability between the system for a good web mapping? Describe how the following OGC specifications can support interoperability between the different information systems.
   a) WMS specification
   b) WFS specification

4. Briefly explain any TWO of the following terms with their usage
   a) Databse server and map server
   b) WCS and WPS
   c) XML, GML and KML

5. Discuss the major steps and system architecture while developing a web-GIS application

6. What do you understand by frontend and backend of a Web GIS application? Discuss the technology behind these for an Open Source Web GIS Application.

7. How are vector and raster data published through GeoServer? Describe the styling for each of the vector and raster rendering.

SECTION "C"
[2 Q. × 8 = 16 marks]

Attempt *ANY TWO* questions.

8. What are web services? Explain WFS Architecture.

9. What is distributed GIS? Compare between Desktop and near future direction of Distributed GIS.

10. What is multi-tier Architecture System? Discuss the different components of a three tier system for a web GIS application.