KATHMANDU UNIVERSITY
End Semester Examination
February, 2025

Marks Scored:

Level : B.E.
Year : III

14 FEB 2025

Course : GEOM 313
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date :

SECTION "A"

[20 Q. × 0.5 = 10 marks]

Choose and encircle the most appropriate option from each set of choices

1. Which principle of cartographic design involves positioning map elements to create equilibrium and harmony?
   a. Balance
   b. Hierarchical Organization
   c. Legibility
   d. Visual Contrast

2. What differentiates augmented reality (AR) primarily from virtual reality (VR)?
   a. AR creates a fully virtual environment, while VR enhances the real world
   b. AR uses VR headsets, while VR uses cameras and sensors
   c. AR overlays digital information on the real world, while VR replaces the real world entirely
   d. AR is limited to navigation, while VR is used for gaming

3. The image formed on the blanket cylinder of the offset printing press is:
   a. Mirror Reverse Positive
   b. Mirror Reverse Negative
   c. Right Reading Positive
   d. Right Reading Negative

4. What is the primary advantage of digital map dissemination compared to analogue methods?
   a. Lower cost of production
   b. High interactivity and customization
   c. Better spatial awareness
   d. Reduced need for hardware

5. What is the role of a printing plate in offset lithographic printing?
   a. To apply ink directly to the printing medium
   b. To transfer an image to the blanket cylinder for printing
   c. To screen colors during the reproduction process
   d. To generate proofs for editing purposes

6. What distinguishes the direct-to-press method from computer-to-plate technology in map reproduction?
   a. Direct-to-press uses film negatives, while computer-to-plate eliminates the need for them
   b. Direct-to-press eliminates intermediate plates, while computer-to-plate creates plates directly from digital files
   c. Direct-to-press uses low-resolution printers, while computer-to-plate requires high-resolution printers
   d. Direct-to-press is used for on-screen maps, while computer-to-plate is used for physical maps

7. What is the key advantage of high-fidelity process color over traditional CMYK?
   a. Uses fewer inks for cost savings
   b. Eliminates the need for spot colors
   c. Enhances the grayscale contrast of printed maps
   d. Includes additional colors to reproduce a broader range of shades

8. Which language specifies the content of web pages in web mapping?
   a. CSS b. HTML c. JavaScript d. XML

9. Why should web maps follow responsive design principles?
   a. To ensure compatibility with GIS software
   b. To adapt their layout dynamically for various screen sizes and devices
   c. To provide better static visualization
   d. To ensure maps remain static and unchanging

10. Which of the following is NOT a common programming language for server-side web mapping development?
    a. Python b. PHP c. JavaScript d. Swift

11. What is the "lost in hyperspace" effect in multimedia cartography?
    a. When users get lost due to too many links and unclear navigation
    b. When users get lost while exploring 3D virtual environments
    c. When users get lost when maps do not contain any textual elements
    d. When users get lost when multimedia elements fail to load correctly

12. Which of the following is an example of non-temporal animation?
    a. Weather forecast animation b. Urban sprawl visualization
    c. Spinning globe on a webpage d. Traffic flow animation

13. What type of atlas allows users to manipulate datasets and change visual aspects like classification methods?
    a. View-only Digital Atlas b. Interactive Digital Atlas
    c. Analytical Digital Atlas d. Historical Digital Atlas

14. Which usability research technique involves experts evaluating a system without direct user involvement?
    a. Empirical usability testing b. Focus group discussions
    c. Observation d. Usability inspection

Fill in the blanks

15. One of the key characteristics of modern cartography is its _____ nature, allowing maps to adapt to various devices and media.

16. _____ converts the digital map file into page description data.

17. _____ refers to the harmonious capability of diverse systems, devices applications or components to seamlessly collaborate, share information and effectively utilize the exchanged data.

18. The ability to run two temporal animations in parallel to compare patterns or detect relationships is known as _____.

19. Geo-visual Analytics helps to detect the expected and _____ the unexpected patterns.

20. In user-centered design (UCD), iterative design involves continuously testing, _____and refining prototypes to meet user needs.

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SECTION "B"

Attempt ALL questions.

1. Write in short about applications based upon the use of modern cartographic tools. How does analogue dissemination of maps differ from digital dissemination and in what situations might one be preferred over the other? Explain. [2+3]

2. Differentiate between halftone screening and stochastic screening. Explain in brief about the process involved in the high-volume print reproduction. [2+4]

3. Define web maps. List different web mapping data file formats. Explain how web maps can be used as a valuable tool in the disaster resilience. [1+1+3]

4. What type of organization is OGC? Explain the various services provided by it. [1+3]

5. Describe how different media uniquely contribute to the representation of the spatial information. [3]

6. What do you understand by mapping time? Explain different types of maps that are effective in conveying changes over time. [1+3]

7. If you were the CEO of a rising geospatial consulting company and tasked with developing an atlas for a crucial sector in Nepal, which sector would you choose and why? What type of atlas would you create and explain what themes you would incorporate in it? [4]

8. Why the data exploration has to be initiated without assuming hypothesis? How does geo-visualization technique helps to uncover patterns, relationships and trends? Explain with examples. [1+3]

9. What do you understand by User Centric Design (UCD)? As a geospatial engineer, you have been assigned for designing a user-centered geospatial product. What key processes and methodologies would you follow to ensure that the final product is fully optimized for user needs, usability and overall user experience? [1+4]