

KATHMANDU UNIVERSITY
End Semester Examination
January 2025

Marks Scored:

Level : B.E.

Year : IV

Exam Roll No. :

Time: 30 mins.

Course : GEOM 402

Semester : I

F. M. : 10

Registration No.:

Date : 23-Jan-025

SECTION "A"

[20Q. × 0.5 = 10 marks]

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

1. The sun is an example of
 - a. Passive Sensor
 - b. Active Sensor
 - c. Source of electromagnetic energy
 - d. Satellite
2. The behaviour of electric field and magnetic fields with respect to the time is expressed by
 - a. Wave theory
 - b. Maxwell theory
 - c. Photon theory
 - d. Stefan-boltzmann theory
3. Which of the following range of electromagnetic spectrum does not falls under atmospheric windows?
 - a. UV range
 - b. Visible range
 - c. Infrared range
 - d. Radio range
4. Which of the following geometric parameter of electromagnetic radiation depends upon both direction and location?
 - a. Existance
 - b. Radiant power
 - c. Irradiance
 - d. Radiance
5. Which of the following image format is suitable if one is mainly interested in working with individual spectral bands?
 - a. Band sequential (BSQ)
 - b. Band Interleaved by Sample (BIS)
 - c. Band Interleaved by Line (BIL)
 - d. Band Interleaved by Pixel (BIP)
6. Which of the following type of scanner is used in Landsat TM?
 - a. Line Scanner
 - b. Whiskbroom Scanner
 - c. Pushbroom Scanner
 - d. Paddlebroom Scanner
7. Which of the following statement is not true in case of DN histogram?
 - a. Histogram of larger images of land areas are typically unimodel
 - b. DN histogram of image scene is usually skewed
 - c. Histogram contains direct information about the spatial distribution of pixels
 - d. Image histogram is useful tools for contrast enhancement
8. Diagonal element of covariance matrix is
 - a. standard deviation and always positive
 - b. standard deviation and always negative
 - c. Variance and always positive
 - d. Variance and always negative
9. Shadows are not totally dark due to
 - a. unscattered surface reflected radiation
 - b. Downscattered surface reflected skylight
 - c. Upscattered path radiance
 - d. path emitted radiance

10. If the minimum and maximum DN value of a scene of 6 bit image is 10 and 50 respectively. If the image is subjected to the min-max linear stretch, then what is the approximate DN value of pixel who's original DN value is 30?
 a. 30 b. 0 c. 63 d. 35
11. Post image classification processing is generally performed by _____ Filter.
 a. Morphological filter b. Gradient filter
 c. Statistical filter d. linear filter
12. The scaling factor for histogram equalization for $N = 24$ and $L = 16$ is
 a. 0.5 b. 0.625 c. 0.75 d. 0.875
13. Which of the following is an example of random noise in remote sensing imagery?
 a. Periodic line dropout b. Line stripping
 c. Salt and pepper effect d. Atmospheric error
14. To convert at sensor radiance to TOA reflectance, which of the following element is not required?
 a. Earth sun distance b. Solar zenithal angle
 c. Solar spectral irradiance d. Surface reflectance
15. The error in the image due to terrain relief falls under _____ error.
 a. Platform b. Scene c. Sensor d. Scene and Sensor
16. Which of the following falls under 1st order feature measurement for feature extraction from remote sensing imagery?
 a. Spectral information b. Texture information
 c. Ancillary information d. Contextual information
17. Which of the following interpolation technique is suitable for the layer stacking of the image?
 a. Nearest Neighbor b. Bilinear Interpolation
 c. Cubic Convolution d. Polynomial Interpolation
18. If the supervised classification is done by using Landsat image which spatial unit of analysis as image pixel, then the minimum mapping unit (MMU) is usually
 a. 30 hectares b. 0.09 hectares c. 0.30 hectares d. 9 hectares
19. In which classification technique does each pixel display multiple and partial class membership?
 a. hard classification b. soft classification
 c. parametric classification d. Non-parametric classification
20. Given an Error matrix, the kappa coefficient is
 a. 0.70
 b. 0.50
 c. 0.67
 d. 0.56

Map Classes	Evaluation Classes		
	3	0	0
	0	2	2
	1	0	2

KATHMANDU UNIVERSITY
End Semester Examination
January 2025

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

23-jan-025

Course : GEOM 402
Semester : I
F. M. : 40

SECTION "B"

[40 marks]

Attempt *ANY EIGHT* questions.

1. Describe with well labelled diagram the key stages of remote sensing process. [5]
2. Compare and contrast repeat cycle and revisit time of remote sensing. Why is revisit time important for monitoring dynamic phenomena such as floods or urban growth? [2+3]
3. How does energy of electromagnetic radiation vary with temperature? Explain it with reference to the physical laws of radiation. [5]
4.
 - a. How size of kernel of typical filter affects the result? Explain it with examples. [2]
 - b. How does gradient filter work for edge detection? List any two local gradient filter. [2+1]
5. How does PCA reduce the dimensionality of a dataset while preserving most of its variance? Explain the procedure with an example. [5]
6. Describe the overall process of radiometric correction for acquiring surface reflectance from raw Digital Number (DN) values in satellite imagery. Explain key steps highlighting its importance in ensuring accurate data analysis. [5]
7. How does parallelepiped algorithm define the boundaries in a feature space? What are the limitations of classical parallelepiped algorithm, and how can these limitations be addressed? [2+1+2]
8. Suppose you are assigned as a lead remote sensing expert for preparation of land use land cover map of whole Nepal with minimum mapping unit of 5 hectares. Prepare the detailed workplan (from map acquisition to map preparation) for fulfilling the abovementioned work. [5]
9. Write short notes on: (*ANY TWO*) [2×2.5=5]
 - a. Univariate Image Statistics Vs Multivariate Image Statistics
 - b. Classification error and accuracy
 - c. Empirical approach of geometric correction
 - d. Unscattered surface reflected radiation component

KATHMANDU UNIVERSITY
End Semester Examination
January 2025

Marks Scored:

Level : B.E.

Year : IV

Exam Roll No. :

Time: 30 mins.

Course : CIEG 405

Semester : I

F. M. : 10

Registration No.:

Date : 27-jan-025

SECTION "A"

[20Q. × 0.5 = 10 marks]

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

1. Which is not an advantage of Entrepreneurship?
a. Small business Interest b. Creative
c. Increase Money d. Sole decision
2. What type of entrepreneurial business actually produce the products they sell?
a. Service b. Innovation c. Manufacturing d. Retail
3. Which is not the type of innovation?
a. Invention b. Duplication c. Synthesis d. Meeting
4. According to Schumpeter, innovative entrepreneurs would:
a. Thrive in the Market
b. Not Survive and Disappear
c. Get Absorbed within Larger Innovative Businesses
d. Involve in Creative Destruction
5. Which of these is not a method of generating new ideas?
a. Brainstorming b. Focus Group c. Value Analysis d. Pricing
6. Which of these is a part of creativity?
a. Incubation b. Communication c. Investment d. Organization
7. Which of these is not a problem of enterprises?
a. Profit b. Investment
c. Technology Transfer d. Decision
8. Which is the main part of feasibility analysis?
a. Financial Analysis b. Idea Generation
c. Buyer List d. Intellect
9. Which of these is not the risk of a new business?
a. Financial Risk b. Goal Risk c. Career Risk d. Social Risk
10. Who should be involved in preparing a firm's business plan?
a. Staff b. Board Member c. Entrepreneur d. Supervisor

11. Which one is not a step in the problem-solving method?
 - a. Case Problem
 - b. Gather Information
 - c. Introduce Solution
 - d. Avoid the Problem

12. The process of creating something new is called:
 - a. Innovation
 - b. Management
 - c. Business
 - d. Plan

13. Who is considered the father of entrepreneurship?
 - a. Joseph Schumpeter
 - b. Paul Reynolds
 - c. Bill Gate
 - d. Elon musk

14. What does patent do?
 - a. Protect Invention
 - b. Strategic Decisions
 - c. Organizational Decisions
 - d. Personal Decisions

15. Why is the universal human right an important?
 - a. Freedom without Discrimination
 - b. Future generation Entrepreneurs
 - c. Existing Entrepreneurs Supervision
 - d. Management of Business

16. Why is the organization significant for?
 - a. Routine Decisions
 - b. Strategic Decisions
 - c. Organizational Decisions
 - d. Personal Decisions

17. Ownership position of more than 50 per cent in a business is known as:
 - a. Minority Interest
 - b. Joint Venture
 - c. Majority Interest
 - d. Sole Partner

18. What is the purpose of a feasibility study for starting a new venture?
 - a. Exploring for Potential Customers
 - b. Estimate Sales
 - c. Understand Barriers to Success
 - d. Profit

19. An entrepreneur who is the owner of more than one business is called:
 - a. Portfolio Entrepreneur
 - b. Intrapreneur
 - c. Corporate Entrepreneur
 - d. Manager

20. Grameen Bank by Muhammad Yunus is an example of entrepreneurship
 - a. Innovative
 - b. Social
 - c. Public
 - d. Joint