Register Number:……..

KUMARAGURU
college of technology
character is life

B.E DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Fourth Semester

CIVIL ENGINEERING

U18CEI4203: Remote Sensing and Geographic Information Systems

COURSE OUTCOMES

CO1: Analyze the principles and components of photogrammetry and remote sensing.
CO2: process of data acquisition of satellite images and their characteristics.
CO3: Analyze an image visually and digitally with digital image processing techniques.
CO4: Explain the concepts and fundamentals of GIS.
CO5: Apply the knowledge of remote sensing and GIS in different civil engineering filed.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match the List –I with List-II CO4 [K_2]

List I	List II
A. Nominal Scale	i. has Magnitude, has equal interval, has absolute zero
B. Ordinal Scale	ii. No Magnitude, No equal interval, No absolute zero
C. Interval Scale	iii. has Magnitude, no equal interval, no absolute zero
D. Ratio Scale	iv. has Magnitude, has equal interval, no absolute zero

	A	B	C	D
a)	ii	i	iii	iv
b)	iii	iv	ii	i
c)	ii	iii	iv	i
d)	iii	i	ii	iv

2. Which among the Remote sensing techniques is most suitable for identifying animal population from dense forest? CO1 [K_2]

a) Aerial Photographs
b) Thermal images
c) High Resolution optical images
d) Microwave images

3. Which describes the characteristics of the attribute data? CO5 [K_1]

(1) non-spatial element

(2) Organized in single or multiple table

(3) Descriptive information of spatial features

(4) represented by point, line

a) 1,2,3 b) 1,2,4

c) 1,2 d) 2,3

4. Energy absorbed by vegetation is highest in _____region and lowest in _____ region of the EMS. CO3 [K_1]

1. Red
2. Near Infra-Red
3. Green
4. Ultraviolet

a) 1,2 b) 2,3

c) 1,4 d) 2,4

5. Assertion (A): Higher the precision better the data for use. CO4 [K_2]

Reason (R): Precision refers to the dispersion of the positional errors of the data elements.

a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A

c) A is true but R is false d) A is false but R is true

6. Particulate concentration in air is shown in map using _____technique CO5 [K_2]

a) Buffering b) Swipe

c) Polygon d) DEM

7. Find the sequence in Analysis using GIS CO4 [K_1]

1. Layer creation
2. Creation of attribute table
3. Georeferencing
4. Spatial analysis

a) 2-3-4-1 b) 1-3-2-4

c) 3-1-2-4 d) 4-1-3-2

8. The classification techniques are used in — CO3 [K1]

1) visual image interpretation
2) digital image interpretation
3) orbital selection
4) Electromagnetic spectrum

a) 1,2 b) 2,3
c) 3,4 d) 1,4

9. Assertion (A): The maximum reflectance of water is in visible region — CO1 [K2]

Reason (R): The ocean resource satellite have the wavelength band of 0.4 to 0.7 micrometer

a) Both A and R are Individually true and R is the correct explanation of A
b) Both A and R are Individually true but R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

10. Which one of the following statements is correct? — CO2 [K1]

(1) During the day, earth reflects solar radiation.
(2) During the day earth reflects both solar radiation the emission from its surface
(3) During the night, earth emits radiation from its surface.
(4) Does not reflect any radiation

a) 1,2,3 b) 1,2,4
c) 2,3,4 d) 1,3,4

Answer any TEN Questions:-
PART B (10 x 4 = 40 Marks)
(Answer not more than 80 words)

11. Which law describes the "black body" concept? Give a detailed explanation. — CO1 [K2]
12. Why does the sky appears blue in the mid-day and red tone in the evening? Comment in relevance to Electromagnetic radiation. — CO1 [K3]
13. What is pay-load description? Explain it with LandSat satellite. — CO2 [K2]
14. Write a detailed note on the orbital characteristics of a satellite. — CO2 [K2]
15. Comment on the significance of the image interpretation. — CO3 [K2]
16. Mention the technique that can be adopted for image enhancement. — CO3 [K2]
17. Explain run-length encoding method. — CO4 [K2]
18. Critically examine the methods of projections and suggest the most used one. — CO4 [K3]
19. Differentiate Raster and Vector data. — CO5 [K2]

20.		How is the data compression done in GIS?	CO5	[K_2]
21.		Give a short note on the components of remote sensing.	CO1	[K_2]
22.		Describe the analysis in attribute data of maps.	CO5	[K_2]

Answer any FIVE Questions:-
PART C (5 x 10 = 50 Marks)
(Answer not more than 250 words)

23.		Comment and evaluate on the spectral reflective characteristics of soil and vegetation for the data captured by the satellite.	CO1	[K_3]
24.		Elaborate on the importance and types of resolution.	CO2	[K_2]
25.		Elaborate on the Supervised and Unsupervised classification techniques for image interpretation on Land use land cover mapping.	CO3	[K_3]
26.	a)	Explain the methods in Data Base Management Systems (DBMS).	CO4	[K_2]
	b)	How DBMS contribute to the effectiveness in GIS?	CO4	[K_2]
27.	a)	Explain the spectrum Electromagnetic radiation and its applications.	CO1	[K_2]
	b)	How atmospheric windows contribute in the remote sensing studies.	CO1	[K_2]
28.		A smart city is planned to be developed. How will you devise a map displaying the Greenery in urban location using GIS?	CO5	[K_4]

****