QPC: RN20BTECH683 AR 20 Reg. No

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Seventh Semester – Regular) Examinations, November – 2023

BPEAG7031 - Remote Sensing and GIS Applications

(Age)

Time: 3 hrs Maximum: 70 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) (1 x 10 = 10 Marks)

Q.1. Answer ***ALL*** questions			[CO#]	[PO#]
a.	Which of the following sensors is used for ocean color remote sensing?		CO1	PO1
	(i) MODIS	(ii) Landsat		
	(iii) RADAR	(iv) LiDAR		
b.	Which remote sensing application is used for assessing and monitoring forest resources?		CO1	PO3
	(i) Agricultural crop monitoring	(ii) Deforestation detection		
	(iii) Urban planning	(iv) Glacier monitoring		
c.	Which of the following factors affects the scale of aerial photographs?		CO2	PO1
	(i) Altitude of the aircraft	(ii) Focal length of the camera lens		
	(iii) Size of the film used	(iv) All of the above		
d.	For the aerial photograph, the interpretation is easy if it is		CO2	PO2
	(i) Vertical	(ii) Tilted		
	(iii) Oblique	(iv) Any of the above		
e.	Which part of the electromagnetic spectrum is often used in satellite remote sensing to study vegetation health?		CO3	PO1
	(i) Visible light	(ii) Infrared		
	(iii) Microwave	(iv) Ultraviolet		
f.	What is the term for the process of interpreting aerial or satellite images to identify objects and assess their significance?		CO3	PO1
	(i) Remote sensing	(ii) Georeferencing		
	(iii) Image analysis	(iv) Image interpretation		
g.	What type of data is used to represent non-spatial information in GIS?		CO4	PO1
	(i) Vector data	(ii) Raster data		
	(iii) Attribute data	(iv) Georeferenced data		
h.	Which GIS function is used for smoothing or simplifying geographic features?		CO4	PO2
	(i) Spatial autocorrelation	(ii) Spatial interpolation		
	(iii) Generalization	(iv) Disaggregation		
i.	Which of the following is an example of remote sensing system?		CO1	PO1
	(i) Human eye	(ii) Bat's Guidance system		
	(iii) Remote sensing satellite	(iv) All of the above		
j.	Which of the following instruments is used to measure the tilt and roll of the aircraft during photography?		CO2	PO2
	(i) Altimeter	(ii) Tachometer		
	(iii) Inclinometer	(iv) Barometer		

PART – B: (Short Answer Questions) (2 x 10 = 20 Marks)

Q.2. Answer ***ALL*** questions		[CO#]	[PO#]
a.	Name a few satellite-based remote sensing systems.	CO1	PO1
b.	Explain the concept of radiometric resolution in remote sensing.	CO1	PO2
c.	How does aerial photogrammetry differ from terrestrial photogrammetry?	CO2	PO2
d.	Define "Crab" and "Drift".	CO2	PO2

e.	What are some of the benefits of using satellite remote sensing?	CO3	PO1
f.	What are some of the features of different remote sensing software packages?	CO3	PO2
g.	What are some of the applications of GIS?	CO4	PO1
h.	Explain the difference between vector and raster data.	CO4	PO2
i.	What is remote sensing?	CO1	PO1
j.	What are Ground Control Points (GCPs) in aerial photogrammetry?	CO2	PO2

PART – C: (Long Answer Questions) **(10 x 4 = 40 Marks)**

Answer ***ALL*** questions		Marks	[CO#]	[PO#]
3. a.	Explain the different regions of the spectrum used in remote sensing and their applications.	5	CO1	PO1
b.	Compare and contrast active and passive remote sensing techniques. Provide examples of each and explain when each technique is preferred.	5	CO1	PO2
	(OR)			
c.	Discuss the followings (i) Ground Control Stations (ii) Name First Indian Satellites and First Remote Sensing Satellites	5	CO1	PO1
d.	What are the different application of remote sensing? Explain.	5	CO1	PO2
4. a.	A camera having focal length of 40 cm is used to take a vertical photograph to a terrain having an average elevation of 1800 m. what is the height above MSL at which an air craft must fly in order to get the photograph at a scale of 1:10000	5	CO2	PO2
b.	Define the followings (i) Vertical Photograph (ii) Tilted photograph (iii) principle axis (iv) flying height (v) exposure station	5	CO2	PO2
	(OR)			
c.	A camera having focal length of 20 cm is used to take a vertical photograph to a terrain having an average elevation of 1600 m. what is the height above MSL at which an air craft must fly in order to get the photograph at a scale of 1:10000.	5	CO2	PO2
d.	Describe the applications of aerial photogrammetry in various fields, including archaeology, forestry, environmental monitoring, urban planning, and precision agriculture.	5	CO2	PO2
5. a.	Write Short Notes on (a) Spectral Resolution (b) Temporal Resolution	5	CO3	PO1
b.	Discuss the benefits of using remote sensing software in terms of efficiency, accuracy, and automation in image analysis tasks.	5	CO3	PO2
	(OR)			
c.	Discuss the applications of image interpretation in land use planning, urban development, and environmental impact assessment.	5	CO3	PO2
d.	Address the challenges of image interpretation, such as image quality variations, subjective interpretation, and the need for expert knowledge.	5	CO3	PO2
6. a.	Discuss the significance of spatial data and how GIS integrates geographic information for analysis and visualization.	5	CO4	PO2
b.	Differentiate between the spatial data and non-spatial data.	5	CO4	PO1
	(OR)			
c.	What are the challenges faced and considerations involved in digitizing the data in GIS.	5	CO4	PO1
d.	What do you mean by open-source GIS software? Discuss the key features of Arc GIS and QGIS software.	5	CO4	PO2

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