Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination May-2023

OE00038 Remote Sensing & GIS

Programme: B.Tech. Branch/Specialisation: All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. _____ is present on the satellites of GPS to contribute the accurate time information. **1**

(a) Antenna (b) Transponder

(c) Atomic clocks (d) None of these

ii. The GPS operated by Indians is _____. **1**

(a) Compass (b) GLONASS

(c) Galileo (d) NavIC

iii. Which one of the following helps to identify the objects on the earth surface? **1**

(a) Atmospheric window (b) Signature

(c) Radiometric error (d) None of these

iv. The system that uses the Sun as a source of electromagnetic energy and records the naturally radiated and reflected energy from the object is called- **1**

(a) Geographical Information System

(b) Global Positioning System

(c) Passive Remote Sensing

(d) Active Remote Sensing

v. First fundamental step in image processing is- **1**

(a) Filtration (b) Image acquisition

(c) Image enhancement (d) Image restoration

vi. Image enhancement and restoration are used to process- **1**

(a) High resolution images (b) Degraded images

(c) High quality images (d) Brighter images

P.T.O.

vii. Among the following, which do not come under the components of GIS? **1**
(a) Hardware (b) Software (c) Compiler (d) Data

viii. What is the meaning of spatial data? **1**
(a) Decimal Values (b) Positional values
(c) Complex values (d) Graphic values

ix. Topography deals with _____ of earth surface **1**
(a) Size (b) Characteristic
(c) Location (d) Colour

x. In a raster overlay, a point is represented by a- **1**
(a) String of cells (b) Group of cells
(c) Single cell (d) All of these

Q.2 Attempt any two:

i. Describe coordinate system in GPS. **5**

ii. Explain working principle of GPS. **5**

iii. Write short note on the following: **5**
(a) WGS 1984
(b) Geodetic and Geocentric coordinates

Q.3 Attempt any two:

i. Discuss briefly electromagnetic energy and electromagnetic spectrum. **5**

ii. Differentiate between Geostationary and sun-synchronous satellite. **5**

iii. Discuss energy interaction with earth surface. **5**

Q.4 Attempt any two:

i. Define digital image, pixel, brightness, Noise, grey level. **5**

ii. Explain briefly False colour composite **5**

iii. Explain steps of Digital image classification technique. **5**

Q.5 Attempt any two:

i. Explain various types of map projections. **5**

ii. Write notes on: **5**
(a) UTM Grid system
(b) UPS Grid system

iii. Describe briefly the applications of GIS. Discuss how closely GIS is related to remote sensing. **5**

Q.6 Attempt any two:

i. Describe the raster and vector data structure. **5**

ii. What are the possible advantages and disadvantages of using a raster GIS as opposed to vector? **5**

iii. Describe briefly the following with regard to the representation of geographic features: (a) Line data, and (b) Aerial data. **5**

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Marking Scheme
OE00038 Remote Sensing & GIS

Q.1	i)	**c. Atomic clocks**	**1**
	ii)	d. NavIC	**1**
	iii)	b. Signature	**1**
	iv)	c. Passive Remote Sensing	**1**
	v)	b. image acquisition	**1**
	vi)	c. degraded images	**1**
	vii)	c. Compiler	**1**
	viii)	b. Positional values	**1**
	ix)	b.Characteristic	**1**
	x)	c. Single cell	**1**
Q.2	i.	Correct Answer	**5**
	ii.	Correct Answer	**5**
	iii.	Part a and b	**2.5 each**
Q.3	i.	electromagnetic energy and electromagnetic spectrum.	**2.5 each**
	ii.	Geostationary and sun-synchronous satellite.	**2.5 each**
	iii.	energy interaction with earth surface	**5**
Q.4	i.	digital image, pixel, brightness, Noise, grey level	**1 each**
	ii.	False colour composite	**5**
	iii.	Digital image classification technique	**5**
Q.5	i.	types of map projections	**5**
	ii.	(a) UTM Grid system	**2.5**

		(b) UPS Grid system	**each**
	iii.	applications of GIS	**3**
		Discuss how closely GIS is related to remote sensing	**2**
Q.6			
	i.	raster and vector data structure	**2.5 each**
	ii.	advantages and disadvantages	**2.5 each**
	iii.	1. Line data 2. Aerial data	**2.5 each**

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