Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2019

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.

Q.1 i. Global Positioning System (GPS) is a **1**
(a) Satellite Word Station (b) Satellite System
(c) Satellite Signal (d) Satellite Solution

ii. Global Positioning Service (GPS) uses 24 satellites in **1**
(a) 9 orbits (b) 8 orbits (c) 7 orbits (d) 6 orbits

iii. Remote sensing can be as basic as **1**
(a) Putting cameras on camels
(b) TV remotes
(c) Putting cameras on airplanes
(d) Putting sensors on satellites

iv. Which one of these is a long wavelength radiation? **1**
(a) Ultra violet (b) X-ray
(c) Infrared (d) Gamma ray

v. Removal of sensor or atmospheric noise to represent ground conditions more accurately is called **1**
(a) Radiometric correction (b) Image restoration
(c) Geometric correction (d) None of these

vi. Following is not systematic distortion of image **1**
(a) Scan scew (b) Spacecraft velocity
(c) Earth's rotation (d) Altitude variance

vii. The graphical elements of vector data structure are **1**
(a) Point (b) Arc (c) Area (d) All of these

viii. GIS deals with which kind of data **1**
(a) Numeric data (b) Binary data
(c) Spatial data (d) Complex data

P.T.O.

ix. Key components of 'spatial data' quality include **1**
(a) Positional accuracy (b) Temporal accuracy
(c) Lineage and completeness (d) All of these

x. Description of smallest features in data set that can be displayed or mapped is known as **1**
(a) Accuracy (b) Bias
(c) Resolution (d) Generalization

Q.2 Attempt any two:
i. Define GPS working principle and its evolution. **5**
ii. What are different type coordinate systems in GPS? **5**
iii. Discuss the relative advantages of integer and real (floating point) representations of coordinates in spatial databases. When would you choose one and when the other, and why **5**

Q.3 Attempt any two:
i. What is remote sensing? Explain the advantages and limitations of remote sensing? **5**
ii. Explain electromagnetic spectrum? **5**
iii. What are different Types and Uses of Satellites? Also explain remote sensing satellite orbits? **5**

Q.4 Attempt any two:
i. Explain in detail digital image processing? **5**
ii. Define digital image, pixel, brightness, grey level, FCC. **5**
iii. Explain the applications of remote sensing in water resources? **5**

Q.5 Attempt any two:
i. Explain in detail about the basic components of GIS? **5**
ii. Discuss UTM. State the limitations of UTM system. **5**
iii. Explain how spatial data and attribute data integrated to make a GIS? **5**

Q.6 Attempt any two:
i. Explain in detail about the data base management. **5**
ii. Elaborate Geo-relational Vector Data Model. **5**
iii. What is Raster Data Model? Briefly describe it? **5**

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Marking Scheme
OE00038 Remote Sensing & GIS

Q.1	i.	Global Positioning System (GPS) is a (b) Satellite System		**1**
	ii.	Global Positioning Service (GPS) uses 24 satellites in (d) 6 orbits		**1**
	iii.	Remote sensing can be as basic as (a) Putting cameras on camels		**1**
	iv.	Which one of these is a long wavelength radiation? (c) Infrared		**1**
	v.	Removal of sensor or atmospheric noise to represent ground conditions more accurately is called (a) Radiometric correction		**1**
	vi.	Following is not systematic distortion of image (d) Altitude variance		**1**
	vii.	The graphical elements of vector data structure are (d) All of these		**1**
	viii.	GIS deals with which kind of data (c) Spatial data		**1**
	ix.	Key components of 'spatial data' quality include (a) Positional accuracy		**1**
	x.	Description of smallest features in data set that can be displayed or mapped is known as (c) Resolution		**1**
Q.2		Attempt any two:		
	i.	Define GPS working principle	3 marks	**5**
		Its evolution	2 marks	
	ii.	Type coordinate systems in GPS		**5**
		Spherical coordinate systems	2.5 marks	
		Projected coordinate systems	2.5 marks	
	iii.	Advantages of integer and real	3 marks	**5**
		Selection	1 mark	
		Reason	1 mark	
Q.3		Attempt any two:		
	i.	Definition of remote sensing	1 mark	**5**
		Advantages	2 marks	
		Limitations	2 marks	
	ii.	Electromagnetic spectrum		**5**
		Explanation	3 marks	
		Diagram	2 marks	
	iii.	Types of Satellites	1 mark	**5**
		Uses of Satellites	2 marks	
		Remote sensing satellite orbits	2 marks	
Q.4		Attempt any two:		
	i.	Digital image processing		**5**
	ii.	Define digital image, pixel, brightness, grey level, FCC		**5**
		1 mark for each	(1 mark * 5)	
	iii.	Applications of remote sensing in water resources		**5**
		1 mark for each application	(1 mark * 5)	
Q.5		Attempt any two:		
	i.	Basic components of GIS		**5**
		1 mark for each components	(1 mark * 5)	
	ii.	UTM	2 marks	**5**
		Limitations of UTM system		
		1 mark for each limitation (1 mark * 3)	3 marks	
	iii.	Spatial data and attribute data integrated to make a GIS		**5**
Q.6		Attempt any two:		
	i.	Data base management.		**5**
	ii.	Geo-relational Vector Data Model.		**5**
	iii.	Definition of Raster Data Model	1 mark	**5**
		Description	4 marks	

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