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3 (Sem-6) GGY M 4

2020

## GEOGRAPHY

(Major)

Paper : 6.4

**(Principles and Applications of Remote Sensing, GIS and GPS)**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate full marks for the questions.**

1. Answer the following as directed :

1×7=7

(a) What is Geographical Information System ?

Contd.

(b) Which one among the following is a shorter wave length radiation ?

(i) Ultraviolet radiation

(ii) Microwave radiation

(iii) Infrared radiation

(iv) Radiowave radiation.

(Choose the correct answer)

(c) What is GPS ?

(d) What are attribute data ?

(e) Which one of the following statements in respect of raster and vector data is correct ?

(i) Data volume is large in raster and small in vector model.

(ii) Data structure is complex in raster and simple in vector model.

(iii) Area analysis is average in raster and good in vector model.

(iv) Data extraction is slow in raster and rapid in vector model.

(Choose the correct answer)

(f) Give one example of sensor carrying platforms.

(g) What is photogrammetry ?

2. Answer the following questions in brief :  
2×4=8

(a) Name any two sensors used in Indian remote sensing satellites.

(b) Mention any two characteristics of Electromagnetic Radiation (EMR).

(c) Mention any two functions of GIS.

(d) Mention the two basic information that a GPS can provide us about any point on the earth's surface.

3. Answer any three of the following questions :  
5×3=15

(a) Explain the technique through which an aerial photograph is obtained from Aerial Remote Sensing. 5

(b) Distinguish between 'Aerial Photograph' and 'Satellite Image'. 5

(c) State the functional units of GIS with suitable diagrams. 5

(d) Explain the characteristics of raster data structure with necessary diagrams. 5

(e) What are the remote sensing bands ? State the characteristics of any two of them. 2+3=5

4. Describe the procedures to carry out surveying and mapping of a wetland using GPS. 5+5=10

**Or**

Discuss the principles and data acquisition techniques involved in GPS technology with suitable diagrams. 4+6=10

5. Distinguish between high resolution and low resolution sensors with suitable examples. Explain how a sensor records information from the interaction of Electromagnetic Radiation with the objects. 4+6=10

**Or**

Discuss the role of remote sensing in resource inventory and management with special reference to land resource. 5+5=10

6. State the nature and types of spatial data and show how these data are stored in GIS taking the case of *any one* type of spatial data. 5+5=10

**Or**

Explain the applications of GIS in the study of land use changes in an area. 10