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63/2 (SEM-3) GGY 302

2022

(Held in 2023)

GEOGRAPHY

(Theory Paper)

Paper Code : GGY-302

(Basics of Remote Sensing & GIS)

Full Marks – 80

Pass Marks – 32

Time – Three hours

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

• **Multiple choice Questions :**

1. Choose the correct options of the following :

1×6=6

(a) SAR stands for

(i) Synthetic Aperture Radar

(ii) Systematic Aperture Radar

(iii) Synchronized Amplification Radar

(iv) System Amplification Radar

[Turn over

(b) The angle between the satellite's orbital plane and the earth's equator plane is termed as

- (i) Path (ii) Orbit
- (iii) Inclination (iv) Nadir

(c) Indian Remote Sensing Satellites are series of

- (i) Communication satellites
- (ii) Astronomical satellites
- (iii) Earth observation satellites
- (iv) Navigation satellites

(d) What is UTM zone for 78° W longitude?

- (i) 8th zone (ii) 10th zone
- (iii) 13th zone (iv) 15th zone

(e) Altitude of Geostationary Satellite Orbit ranges between

- (i) 200 km–600 km
- (ii) 1000 km–10000 km
- (iii) 18000 km–22000 km
- (iv) >30000 km

(f) Which is the satellite based elevation data source?

- (i) Toposheet (ii) DEM
- (iii) TIN (iv) Satellite Imagery

2. Answer *all* the questions in brief: $2 \times 5 = 10$

(i) What is FCC? Why it is done in aerial image interpretation?

(ii) Differentiate between an image and a photograph.

(iii) How reflectance and emission is different in remote sensing?

(iv) What is sidereal day in remote sensing?

(v) What is an UAV? Give its significance.

3. Answer any *six* questions in brief: $5 \times 6 = 30$

(i) Write short note on INSAT series.

(ii) Write short note on LANDSAT series.

(iii) Briefly explain remote sensing process with suitable diagram.

(iv) What is Scattering? Explain with suitable diagrams.

(v) What is Radar remote sensing and how polarization is applied?

(vi) What is atmospheric window ? Explain with diagram/s.

(vii) Explain spectral signature curve with diagrams.

(viii) What are the different types of data in GIS ? State its characteristics.

(ix) Differentiate between Active and Passive remote sensing.

4. Answer any two in detail :

$$10 \times 2 = 20$$

(i) Explain wave model of EMR and how electromagnetic spectrum is related ? Explain with diagrams.

(ii) What is resolution ? Explain its types with suitable diagrams.

(iii) What is GPS ? Explain its working principles, factors causing error and its application in technological application.

5. Answer any one in detail :

$$14 \times 1 = 14$$

(i) What is Spatial technology ? Elucidate the application of spatial technology in planning, management and decision making.

$$4 + 10 = 14$$

(ii) What is an Aerial image interpretation ? Explain the different elements of it with significance in spatial analysis with suitable diagrams.

$$3 + 6 + 3 + 2 = 14$$

(4)