

Sheet (1)

Q1: Define Remote Sensing.

Q2: Explain with aid of drawings the remote sensing technique.

Q3: Draw a neat sketch for electromagnetic radiation spectrum.

Q4: Compute in a table the energy range of the following electromagnetic waves:

Gama rays- X rays- UV- Blue- Green- Red- IR (NIR- Thermal)-
Microwaves- Radio waves.

Given: planck's constant (h) = 6.626×10^{-34} joules- sec

Speed of light (C) = 3×10^8 m/sec

Q5: What are the important stages of remote sensing?

Q6: What are the types of remote sensing?

Q7: What are the types of remote sensing platforms?

Q8: What are the advantages and the disadvantages of remote sensing technique?

With best wishes

Dr/ A. Serwa

Sheet (2)

- Q1: Define the black body according to Remote Sensing technology.
- Q2: what are the atmospheric windows?
- Q3: what is the interaction between EMR the atmosphere?
- Q4: Explain in details the terminology of "scattering" and indicate its type.
- Q5: What are the main factors that affect the selection of remote sensing sensors?
- Q6: what is the general behavior of earth objects when they are subjected to EMR? And what is the main factors that affecting this behavior?
- Q7: What is the difference between reflection and scattering?
- Q8: Explain the terms of: CC- TCC- FCC- Albedo.
- Q9: What are the types of reflectors?
- Q10: Why we cannot use the green band to map plants?

With best wishes
Dr/ A. Serwa



Sheet (3)

Q1: Draw a neat sketch for reflectance of a sample of natural features versus wave length.

Q2: Explain how we can map river Nile path using remote sensing technology.

Q3: Draw a neat sketch for the following Remote Sensing satellite orbits:

- Geo-synchronous orbit.
- Polar orbit.
- Near- Polar orbit.
- Sun-synchronous orbit.
- Equatorial orbit.

Q4: Define the following terms in remote sensing technology with the aid of drawing:

- Orbital period.
- Orbit.
- Altitude.
- Apogee.
- Perigee.
- Inclination.
- Nadir point.
- Zenith.
- Ground track.
- Swath.
- Side lap and over lap.
- Spatial resolution.
- Spectral resolution.
- Radiometric resolution.
- Temporal resolution.
- FOV.
- IFOV.

Q5: Give one example for each type of remote sensing satellites:

-Low resolution-Medium resolution-High resolution- Very high resolution.

With best wishes

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Sheet (4)

Q1: Draw a neat sketch for one example for both along track and across track MSS imaging.

Q2: Describe the characteristics of land sat ETM+ 7 satellite.

Q3: What is the use of thermal imaging in remote sensing?

Q4: Compute the emissivity for a body in temperature of 300 K if it emits 350 watt/m² (hint: stefan-Boltzman's constant = 5.6697×10^{-8} watt m⁻²K⁴).

Q5: Draw a neat sketch for thermal sensor.

Q6: describe the characteristics of spectral bands of SPOT 6 satellite.

Q7: what is the use of high resolution satellites?

With best wishes

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Sheet (5) (Experimental)

Q1: Map the following area that had been imaged with MSS image:

120	100	80	89
87	40	35	111
92	86	123	58
132	145	80	79

201	99	109	32
110	140	55	66
36	85	120	111
80	145	60	38

B1

158	210	98	12
84	15	59	0
106	39	11	110
169	10	118	63

B2

188	123	80	120
86	40	35	45
10	33	100	18
0	56	89	98

B3

B4

Spectral Classes' Table

Class	B1	B2	B3	B4	Radius	Color
A	120	200	150	198	50	Green
B	150	109	190	105	60	Red
Z	43	60	35	54	70	Blue

Answer:

?	?	?	?
?	?	?	?
?	?	?	?
?	?	?	?

With best wishes
Dr| A. Serwa