

<b>Name:</b>	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, May 2019**

**Course: Thermal and Microwave Remote Sensing**

**Semester: VIII**

**Program: B.Tech GIE**

**Time 03 hrs.**

**Course Code: GIEG 423**

**Max. Marks: 100**

**Instructions: Answer all questions. However, there is internal choice in some questions.**

**SECTION A**

S. No.	Question	Marks	CO
Q 1	Define the range and azimuth resolution of radar data	5	CO1
Q 2	List out the important application of Polarimetric SAR	5	CO1
Q 3	Calculate the 'Albedo' from Landsat Imagery	5	CO2
Q 4	Correlate the similarity and difference amongst Panchromatic, multispectral and hyperspectral satellite data	5	CO2

**SECTION B**

Q 5	Evaluate the processing steps of LIDAR data imagery and its merits/demerits in creating various topographical outputs.	10	CO2
Q 6	Critically examine the factors causing radar image distortion	10	CO3
Q 7	Calculate the land surface emissivity from multi-spectral VNIR imagery	10	CO3
Q8	Critically analyze the various split window algorithms being used in MODIS data for LST extraction  <p style="text-align: center;"><b>OR</b></p> Derive an algorithm for Temperature and Emissivity extraction in all five thermal bands of ASTER imagery	10	CO4

**SECTION-C**

Q 9	Evaluate the Hyperspectral remote sensing data processing steps and its application in geo-informatics	20	CO5
Q10	Demonstrate the SAR Interferometry data processing of complex image in creating DEM through phase unwrapping  <p style="text-align: center;"><b>OR</b></p> Construct a geometry of SAR Interferometry to extract DEM (Z(x)). Evaluate the possible reasons for lack of coherence in phase image.	20	CO5

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