



Name: ..... Roll No.: .....

Branch: ..... Signature of Invigilator: .....

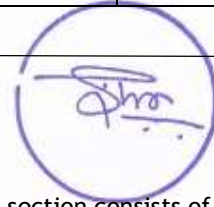
Semester: VIth

Date: 02/05/2022 (MORNING)

Subject with Code: GI501 PRINCIPLES OF REMOTE SENSING

Marks Obtained	Section A (30)	Section B (20)	Total Marks (50)

INSTRUCTION TO CANDIDATE



1. The booklet (question paper cum answer sheet) consists of two sections. First section consists of MCQs of 30 marks. Candidates may mark the correct answer in the space provided / may also write answers in the answer sheet provided. The Second section of question paper consists of subjective questions of 20 marks. The candidates may write the answers for these questions in the answer sheets provided with the question booklet.
2. The booklet will be distributed to the candidates before 05 minutes of the examination. Candidates should write their roll no. in each page of the booklet.
3. Place the Student ID card, Registration Slip and No Dues Clearance (if applicable) on your desk. All the entries on the cover page must be filled at the specified space.
4. Carrying or using of mobile phone / any electronic gadgets (except regular scientific calculator)/chits are strictly prohibited inside the examination hall as it comes under the category of unfair means.
5. No candidate should be allowed to enter the examination hall later than 10 minutes after the commencement of examination. Candidates are not allowed to go out of the examination hall/room during the first 30 minutes and last 10 minutes of the examination.
6. Write on both side of the leaf and use pens with same ink.
7. The medium of examination is English. Answer book written in language other than English is liable to be rejected.
8. All attached sheets such as graph papers, drawing sheets etc. should be properly folded to the size of the answer book and tagged with the answer book by the candidate at least 05 minutes before the end of examination.
9. The door of examination hall will be closed 10 minutes before the end of examination. Do not leave the examination hall until the invigilators instruct you to do so.
10. Always maintain the highest level of integrity. Remember you are a BITian.
11. Candidates need to submit the question paper cum answer sheets before leaving the examination hall.

<b>BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI</b>			
<b>(END SEMESTER EXAMINATION)</b>			
<b>CLASS: B.Tech</b>			<b>SEMESTER : VI</b>
<b>BRANCH: All</b>			<b>SESSION : SP/22</b>
<b>SUBJECT: GI501 Principles of Remote Sensing (OE)</b>			
<b>TIME:</b>			<b>FULL MARKS: 50</b>
<b>INSTRUCTIONS:</b>			
<p>1. The question paper contains 5 questions each of 10 marks and total 50 marks.</p> <p>2. Attempt all questions.</p> <p>3. The missing data, if any, may be assumed suitably.</p> <p>4. Before attempting the question paper, be sure that you have got the correct question paper.</p> <p>5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.</p>			

**Section A : MULTIPLE CHOICE QUESTIONS of 30 Marks (20 x 1marks = 20 marks and 5x2= 10 marks)**

1.	We cannot think of Remote Sensing without	(a) EMR	(b) Satellite
		(c) Space station	(d) None of the above
2.	In passive Remote Sensing, source of energy is	(a) Moon	(b) Sun
		(c) Sensor	(d) None of the above
3.	Different resolutions associated with any satellite image are	(a) Spatial	(b) Spectral
		(b) Radiometric	(c) All of the above
4.	LANDSAT -8 image is	(a) Multispectral image	(b) Multispectral image
		(c) Hyperspectral image	(d) Hyperspectral image
5.	-----sensor operates in all weather	(a) Optical	(b) Both Optical & Microwave
		(c) Microwave	(d) None of the above
6.	International Space station is one of the platform of	(a) Remote Sensing (RS)	(b) Both RS and Photography
		(c) Photography	(d) none of the above
7.	Vegetation reflects more in	(a) Red band	(b) Green band
		(c) NIR band	(d) none of the above
8.	INSAT series of satellite are	(a) Sun Synchronous	(b) Geo Synchronous
		(c) Both 'a' and 'b'	(d) none of the above

CARTOSAT series of satellite are	
(a) Sun Synchronous	(b) Sun Synchronous
(c) Both 'a' and 'b'	(d) none of the above
BIL is	
(a) raster storage format	(b) vector storage format
(c) Both 'a' and 'b'	(d) none of the above
NRSC is one of the Centre of	
(a) ISRO	(b) NASA
(c) Both a and b	(d) None of the above
Which one is coming under image pre-processing technique	
(a) Image enhancement technique	(b) Image classification technique
(c) Atmospheric correction technique	(d) none of the above
Hyperspectral image is useful in	
(a) Mineral mapping	(b) Vegetation species identification
(c) Both a and b	(d) all of the above
IRS series of satellites are	
(a) Remote Sensing satellites	(b) Communication satellites
(c) Weather satellites	(d) None of the above
High Resolution Satellite image is suitable for the study of	
(a) Urban Traffic Congestion	(b) Urban Traffic Congestion
(c) ENSO events	(d) ENSO events
India's 1 <sup>st</sup> Remote Sensing satellite is	
(a) IRS-1 A	(b) IRS-1 A
(c) <i>Bhaskara-I</i>	(d) <i>Bhaskara-II</i>
Satellite remote sensing involves acquisition of	
(a) Earth related data	(b) Atmosphere related data
(c) Ocean related data	(d) Ocean related data
Backscattering is associated with	
(a) Microwave remote Sensing	(b) Thermal remote sensing
(c) Optical remote sensing	(d) None of the above
In active remote sensing, sensors have	
(a) Their own source of energy	(b) Sun as source of energy
(c) Both a and b	(d) none of the above
LANDSAT -8 image is	

(a) Multispectral image	(b) Panchromatic image
(c) Hyperspectral image	(d) all of the above
<b>From question no 21 to 25, Each question carries 2 marks</b>	
One field having total extent of 2Km <sup>2</sup> is represented by 20,000 pixels by an satellite image. Find out the spatial resolution of satellite image	
(a) 5m	(b) 10m
(c) 100m	(d) None of the above
Emissivity plays an important role in case of	
(a) Optical Remote Sensing	(b) Thermal Remote Sensing
(c) Microwave Remote Sensing	(d) None of the above
The unit of Hemispherical reflectance is	
(b) Joule	(b)Watt/m <sup>2</sup>
(c)Unitless	(d)/Steradian
Arrange the platforms in increasing order of their heights from earth's surface	
(a) Space station, Aircraft, Satellite	(b) Satellite, Space station, Aircraft,
(c) Aircraft, Space station, Satellite	(d) None of the above
If you have to go for ground truthing for any satellite based spatial problem solving which resolution you have to take into consideration for validation.	
(a) Spatial	(b) Spectral
(c) Temporal	(d) Radiometric

**Section B SHORT ANSWER QUESTIONS of 20 Marks(4 x 5marks = 20 marks)**

Q1. What do you understand by spectral signature? Draw spectral response curve for vegetation and water body.

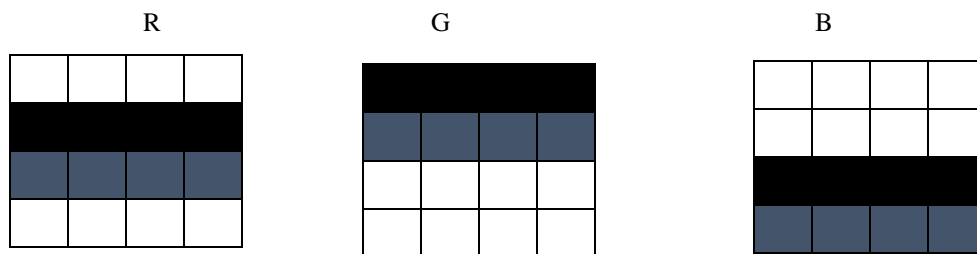
Q2. Explain with illustrations: a) Spectral Resolution, b) Spatial resolution

OR

Describe the following: a) Radiometric resolution b) Temporal Resolution

Q3 Differentiate Geo Synchronous & Sun Synchronous satellites.

Q4. Write the **BIL** storage scheme for the given 3band image with radiometric resolution of 8bit.



OR

What will be the wavelength range of thermal sensor which should be capable of sensing objects between 298K to 315K? Is this range related to atmospheric window?