RollNo. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. (Full Time) - END SEMESTER EXAMINATIONS, APRIL / MAY 2025

GEOINFORMATICS

VIth Semester

PH5201 & Physics for Geoinformatics Engineering

(Regulation2019)

Time: 3 hrs Max.Marks: 100

CO1	Acquire knowledge in specialty physics by further exploring space weather and effect of those environments on satellites.
CO2	Implementing the heat transfer principles in remote sensing.
CO3	Understanding the basic Optical principles.
CO4	Understand the fundamental of gravitation.
CO5	Gain knowledge about different types of electro-optic sensors and its detection mechanism.

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)

(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	What is space weather?	2	1	L1
2	Distinguish thermosphere and ionosphere.	2	1	L2
3	What is thermal conduction? Define Thermal Conductivity.	2	2	L2
4	Define the specific heat capacities of a gas and give the relation between them.	2	2	L2
5	Calculate the focal length of a lens of dispersive power 0.45 which should be placed in contact with a convex lens of length 84cm and dispersive power 0.21 to make the achromatic combination.	2	3	L2
6	What are the conditions of achromatism?.	2	3	L2
7	What is constant of gravitation?	2	4	L1
8	Define Gravitational field.	2	4	L2
9	Give some examples of photo-conductive materials.	2	5	L2
10	Define Quantum efficiency.	2	5	L1

PART- B(5x 13=65Marks)

(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a)	Explain in detail the Earth's space environment of the space weather.	13	1	L4
	OR			
11 (b)	Explain in detail the Earth's upper atmosphere and effect of those environments on satellites.	13	1	L4
12 (a)	Describe with relevant theory the method of determining the coefficient of thermal conductivity of a bad conductor by Lee's disc method.	13	2	L3

	OR			
12 (b)	Describe Forbes's method to determine the thermal conductivity of a conductor in the form of long bar.	**13**	2	L3
13 (a)	Explain chromatic aberration and derive an expression for the axial chromatic aberration in the case of thin lens.	**13**	3	L3
	OR			
13 (b) (i)	Discuss the condition for achromatism of two lenses separated by a distance?	**10**	3	L3
(ii)	A double convex lens has radii of curvature of 40cm and 10cm. Find the longitudinal chromatic aberration for an object at infinity. Given $\mu_{V=1.5230}$ and μ_R =1.5145.	**3**	3	L5
14 (a)	Give in outline the Cavendish's method of determining G and discuss in details Boy's method bringing out clearly advantages of this method over Cavendish's method.	**13**	4	L4
	OR			
14 (b)	What is Doppler effect? Calculate the change in wavelength when the source is moving away from a stationary observer.	**13**	4	L4
15 (a)	Compare the working principle of Avalanche photodiode with PIN photodiode and explain advantages of Avalanche photodiodes for defecting weak signals.	**13**	5	L3
	OR			
15 (b)	Explain in details about the photo emissive detectors in photodevices. Mention its applications.	**13**	5	L3

PART- C(1x 15=15Marks)
(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16. (i)	Define the term Escape velocity and derive the formula for calculating the same.	**10**	4	L5
(ii)	Proof that kepler's law of planetary motion.	**5**	4	L5

ADDITIONAL CONTROLLER OF EXAMINATIONS
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