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B.E. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/ MAY 2014

GEO-INFORMATICS ENGINEERING BRANCH
SECOND SEMESTER

PH8204 - PHYSICS FOR GEO INFORMATICS ENGINEERING

(REGULATIONS 2012)

Time: 3 hr

Answer ALL Questions

(Max. Mark: 100)

Part - A (10 × 2 = 20 Mark)

1. Define irradiance.
2. What are spectral quantities?
3. Distinguish between specular and diffused reflection.
4. What are the bands of frequencies used in RADAR?
5. How does aberrations affect the image formation process in the photographic film?
6. What is the working principle of IR photographic film?
7. Show that gravitational field is irrotational?
8. What are the importances of scientific satellite?
9. Distinguish between photo diode and PiN diode.
10. What is photoemissive layer?

Part - B (5 × 16 = 80 Mark)

11.
 - i. Outline the basics of photographic process in the film with neat diagram and explain the performance of photographic film in terms of : speed, contrast and spectral resolution. (10)
 - ii. How are colour and false-colour of infra - red film constructed? (6)
12. (a) Deduce a mathematical expression for the gravitational potential due to a spherical systems, and derive the gravitational field for the corresponding gravitational potential.

(OR)

- (b) Discuss the various factors affecting the acceleration due to gravity 'g'.
13. (a)
 - i. Describe the construction and working of photomultiplier tube with neat diagram. (10)
 - ii. Explain the various parameters used to assess the performance of a detector. (6)

(P T O)

(OR)

(b) Write short notes on:

(6+4+6)

- i. Photo-voltaic diodes
- ii. CCD Camera and
- iii. Avalanche photo diode.

14. (a) Describe, with neat diagram, the interaction of electromagnetic waves with the earth cover type: vegetation, water and soil.

(OR)

- (b) i. Explain the various types of polarization processes. (12)
ii. Find out the fundamental resonance frequency for N_2 molecule. (4)

15. (a) Derive the expression for Stefan-Boltzmann law of black body radiation.

(OR)

- (b) What is electromagnetic radiation? Explain the different sources of electromagnetic waves with neat diagram.