

29/5/13 22

B.E/B.Tech. (Full Time) End Semester DEGREE EXAMINATION, APRIL / MAY 2013

Second Semester

PH 9162 – PHYSICS FOR GEOINFORMATICS

(Regulations 2008)

Time : 3 Hours

Answer ALL Questions

Max. Marks : 100

Part – A (10 x 2 = 20 Marks)

1. State Stephens – Boltzmann law.
2. What are spectral quantities?
3. What is the operating principle of Radar?
4. Define Incidence angle and Look angle.
5. What is the principle of Photography?
6. What is chromatic aberration?
7. State Newton's law of gravitation.
8. Define escape velocity.
9. Write a note on hybrid photodetectors.
10. List the different types of CCD cameras

Part—B (5 X 16 = 80 Marks)

- 11.(a) Explain in detail about Electromagnetic spectrum and applications of electromagnetic radiation. (10)
- (b) Write a note on thermal emission and fluorescent emission. (6)
12. (a) Explain in detail (i) atmospheric scattering (ii) Rayleigh scattering (iii) Mie scattering (iv) non-selective scattering. (4x4)
- (OR)
- (b) Explain in detail the interaction of Microwave radiation with atmosphere and Earth's Surface.
- 13.(a) What is meant by achromatism? Explain in detail the achromatism of two lenses in contact and also when they are separated by a distance.

(OR)

(b) Explain in detail about basic colour photography. With a note on the construction of colour films and film types.

14. (a) Explain in detail the variation of acceleration due to gravity of the earth with depth and with altitude.

(OR)

(b) What are satellites? Explain in detail about (i) communication satellites (ii) Weather satellites and (iii) Scientific satellites.

15. (a) Write notes on (i) photomultipliers (ii) Photoresistors (iii) PIN diodes and (iv) Avalanche photodiodes

(4x4)

(OR)

(b) Explain in detail (i) optical preamplifiers

(ii) Photoemissive detectors

(iii) Photoconductive and photovoltaic detectors

(4x4)