B.E. / B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2012

GEO INFORMATICS ENGINEERING BRANCH

SECOND SEMESTER

PH 182 - PHYSICS FOR GEO INFORMATICS ENGINEERING

(REGULATIONS 2004)

Time: 3 hr (Max. Mark: 100)

Answer ALL Questions

Part - A ($10 \times 2 = 20$ Mark)

1. What are the types of luminescence?
2. What do you mean by Doppler effect?
3. Write down the thin lens formula
4. What is the importance of parameter of "Speed" of a photographic film?
5. If there is no scattering of electrons due to the core ions, what will be the effect on the conductivity of the metal?
6. In superconductivity why Meissner's effect is an important parameter?
7. What is meant by "hole" in semiconductor?
8. What do you mean by effective mass?
9. Mention the types of magnetic materials
10. Give few applications of ferro-electric materials

Part - B ($5 \times 16 = 80$ Mark)

11. (a) Describe the principle, construction and working of "RADAR" with suitable block diagram?

12. (a) What are the defects in lenses? Explain how to reduce those defects.

(OR)

(b) Describe the photographic technique with suitable diagram.

13. (a) i. State and prove Wiedemann-Franz law.
ii. Why does the Lorentz number determined experimentally does not agree with the value calculated from classical formula.

(OR)

(b) Derive an expression for the density of states and based on that calculate the carrier concentration in metals.

14. (a) Derive an expression for carrier concentration in intrinsic semiconductor and deduce the mass action law.

(OR)

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(b) i. What is Hall-effect?

ii. Derive a expression for a Hall coefficient.

iii. Describe an experimental setup to measure the Hall voltage.

15. (a) Derive an expression for the magnetic moment M of a paramagnetic solid on the basis of quantum theory.

(OR)

(b) i. What is meant by local field in a dielectric?

ii. How local electric field is calculated for a cubic structure?

iii. Deduce the Clausius-Mosotti relation.