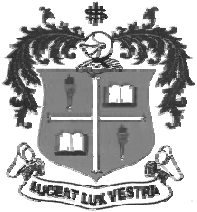


LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – PHYSICS

FIFTH SEMESTER – NOVEMBER 2013

PH 5403 - GEOPHYSICS

Date : 15/11/2013
Time : 9:00 - 12:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL

10x2=20

1. What are Seismic waves? Classify it.
2. What do you mean by Time-Distance curve?
3. Distinguish between Rayleigh waves and love waves
4. Give the seismographic equation.
5. Write Richter's equation to get the magnitude of earth quake.
6. Briefly discuss Gauss method of finding Earth's Magnetism.
7. How does heat flow to the surface of the earth from interior of the earth?
8. Write the Laplace's and Poisson's equation for earth's gravitational potential.
9. Give the decay schemes of the radio nuclide K^{40} .
10. What is Radioactive dating?

Part-B

Answer any FOUR

4x7.5=30

11. Explain the major discontinuities of earth in its structure.
12. Derive an expression for the density gradient of earth from velocities of Seismic waves.
13. Explain the theory of gravitational potential and derive Laplace and Poisson's equations.
14. Explain Proton precession magnetometer method to find earth's magnetism.
15. Discuss the Geological time scale.

Part-C

Answer any FOUR

4x12.5=50

16. Explain the effect of boundaries on the propagation of Seismic waves.
17. Explain strain seismograph and derive Seismography equation.
18. Describe absolute and relative measurement of gravity.
19. Give the theory of radioactive dating of rocks and minerals using i) the decay scheme of Rb^{87} and ii) the decay scheme of K^{40} .
20. Explain the theory of i) Saturation magnetometer and ii) Alkali Vapor Magnetometer.
