



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – PHYSICS

SECOND SEMESTER – APRIL 2015

PH 2956 - GEOPHYSICS

Date : 23/04/2015

Dept. No.

Max. : 100 Marks

Time : 01:00-04:00

PART A

Answer ALL Questions

(10x2=20)

1. What is seismology?
2. Draw travel-time curves for seismic waves.
3. How does Earth behave like a bar magnet?
4. Write down Laplace's and Poisson's equations for gravitational potential?
5. Specify the region of shadow zone, with neat diagram.
6. Discuss the merits of carbon -14 method of age determination of rocks.
7. What are tsunamis?
8. Define magnetic Reynold's number.
9. Calculate the resistivity by mise -a-la-masse method using following data. $I= 7$ mA; $r=20$ cm and $V=10$ volts.
10. Write a short note on the determination of gravity of earth by relative method.

PART B

Answer ANY FOUR Questions

(4x7.5=30)

11. Explain how the subduction zones are formed. Also explain a plate boundary.
12. Discuss briefly about horizontal seismograph.
13. Define geochronology and explain rubidium -strontium method of radioactive dating.
14. Briefly explain the working of proton precession magnetometer.
15. With a neat diagram explain the gravity analysis using Worden gravimeter.
16. Distinguish between P-waves and S-waves.

PART C

Answer ANY FOUR Questions

(4x12.5=50)

17. How do human activities induce earthquake? Discuss the primary and secondary effects of Earthquake?
18. Obtain the seismography equation for horizontal Seismograph with damping correction.
19. How do you determine the age of rock by potassium-argon method?
20. Write a short note on
 - a. Internal structure of the earth
 - b. Temperature and pressure within the earth.
21. Discuss resistivity analysis by
 - a. single current electrode at depth
 - b. single current electrode at surface.
22. With a schematic representation explain the working of alkali vapor magnetometer.
