



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc.DEGREE EXAMINATION – PHYSICS

SECOND SEMESTER – APRIL 2018

17/16PPH2ES02- GEOPHYSICS

Date: 25-04-2018
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

PART A

Answer **ALL** Questions

(10x2=20)

1. How human activities induce an earthquake?
2. Neatly draw horizontal seismograph and mention its parts.
3. If the P-wave velocity is 7 km/s and Poisson's ratio is 0.25. Calculate velocity of S-wave.
4. Define magnetic Reynold's number.
5. Differentiate tensional and shallow earthquakes.
6. What is magma? How it occurs?
7. Find the radiation activity of 1mg of Sr^{90} . The half-life period of Sr^{90} is 26 years.
8. Is Earthquake's magnitude same as its intensity. Explain.
9. List out the factors that influence acceleration due to gravity.
10. What do you mean by electric mapping?

PART B

Answer any **FOUR** Questions

(4x7.5=30)

11. Briefly discuss seismic discontinuity.
12. Explain Richter scale of magnitude analysis.
13. Determine the values of gravity at the following series of points belonging to a gravimetric survey with a Worden gravimeter, specifying the draft correction for each of them.

Station	Time	Reading
A(base)	08:50	562.5
B	09:21	400.7
C	11:34	437.9
D	13:20	360.1
A	14:33	568.8

The gravity at the base is 980.13982 Gal, and the gravimeter constant is 0.31081 mGal/ru
(ru:Reading unit)

14. Draw neatly and explain the working principle of Worden gravimeter.
15. What are the factors affecting resistivity? Explain data collection.
16. Describe the working of Flux gate magnetometer.

PART C

Answer any **FOUR** Questions

(4x12.5=50)

17. What are tectonic plates? How are zone boundaries formed?
18. Derive seismograph equation with damping correction.
19. Distinguish between
 - a) Body waves and Surface waves (4)
 - b) Rayleigh waves and love waves (4)
 - c) Horizontal seismograph and vertical seismograph (4.5)
20. What is Isochron plot? Describe the geochronology of Rb-Sr method?
21. Discuss in detail earthquake effects.
22. Write a short note on
 - a) Internal structure of Earth.
 - b) Earthquake mechanism.

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