LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **PHYSICS**

FIFTH SEMESTER – NOVEMBER 2017

PH 5400 - GEO PHYSICS

Date: 11-14-2017 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART A

Answer ALL questions **(10×2=20)**

1.Write a short note on causes of volcanic explosion.?

2.Write an expression for the velocity of P-waves and S-waves?

3.What is an epicenter?

4.Name the two measures of an earthquake?

5.Differentiate absolute and relative measurements on gravity.

6.How are Tsunamis formed?

7.Give an account on earthquake resistant structures.?

8.A Rayleigh wave in a semi infinite medium has a 20s period.If the P-wave velocity is 6km/s,and the poissions ratio is 0.25.Calculate the velocity of S-wave?

9.Define Liquefaction.?

10.How do you draw homo seismal line of seismic waves?

PART B

Answer ANY FOUR questions **(4×7.5=30)**

11.Discuss the primary and secondary effects of an earthquake.?

12.Describe geochronology by potassium-argon method?

13.Write a short note on modified mercalli scale.?

14.How are constructive, Destructive zones and transform faults are formed?

15.Briefly explain the working of saturation induction magnetometer.

16.Why does the earth behaves like a magnet?

PART C

Answer ANY FOUR questions. **(4×12.5=50)**

17.Neatly draw and explain the earth's interior and compositions.

18.How do you determine the age of rocks by Rubidium strontium method.?

19.Discuss in detail dynamo theory on earth's magnetic field.

20.Explain the working of horizontal seismograph and write short notes on classification of seismographs.

21.Distinguish between Rayleigh waves and Love waves?

22.a.How do human activities induce an earthquake?(3)

22.b. The magnitude $M_s$of an earthquake as calculated for surface waves of period 20s is 6.13Calculate the amplitude of these waves at a station 3000km away. If the Instrument's amplification is 1500, what will be the amplitude of the seismograph's waves and the seismic energy?If $M_S=M_W$,and the area of the fault is 12kmx8 k.m with $\mu=4.4 \times 10^4$M Pa,find the fault slip .(9.5)

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