

Ex/SC/GEOL/UG/MDC/TH/21/202C/2025

B. SC. GEOLOGICAL SCIENCE EXAMINATION, 2025

(2nd Year, 1st Semester)

GEODYNAMICS

PAPER : MDC/TH/21/202C

Time : Two Hours

Full Marks : 40

(Use separate answer scripts for each Part)

Part–I (20 marks)

Answer *any five* questions :

4×5=20

1. Why the extend of P-wave shadow zone is more than the S-wave shadow zone? Explain.
2. With the help of P and S-waves velocity vs depth graph, explain the state of the material within the Earth.
3. Write the important evidences in support of continental drift theory.
4. What are the major differences between diverging and converging plate boundaries?
5. With the help of a suitable diagram, write the major driving and resistive forces acted on the lithosphere.

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[Turn Over]

(2)

6. An elastic plate is pinned at both ends and subjected to a horizontal force P . Applying the equations of bending theory of thin elastic plate, determine the critical horizontal force required to buckle the plate. You need not derive the equation of bending theory of elastic plate.
7. With the help of suitable sketches, explain the conditions for the development of fold-thrust-belt and basin in the back arc region of a convergent lithospheric boundary.

Part-II (20 marks)

Answer *any four* questions : 5×4=20

1. How do you locate different discontinuities within the Earth's interior on the basis of seismic data? 5 [CO4]
2. Describe the origin of Earth's Magnetic Field by a suitable model. 5 [CO4]
3. Write short notes (*any two*) : 2×5=10 [CO4], [CO2]
 - (i) Secular Variation
 - (ii) Triple Junction
 - (iii) Euler Pole

(3)

4. Describe Wegener Continental drifts hypothesis and its evidences. 5 [CO3]
5. Describe the different phases of sea floor spreading with sketches. 5 [CO3]
6. Discuss briefly about the characters of different plate boundaries. 5 [CO3]

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