COMBINED COMPETITIVE EXAMINATION (MAIN)

GEOLOGY

Paper—I

Time : 3 hours *Full Marks* : 200

Note : *(1) The figures in the right-hand margin indicate full marks for the questions.*

*(2) Attempt **five** questions in all.*

(3) Question No. 1 is compulsory.

1. Answer any *ten* questions : 4×10=40

(a) What do you mean by 'shadow wave zone' and how does it happen?

(b) What are the characteristics of andesitic lava flow?

(c) What is unconformity?

(d) What is the importance of Lameta beds in Indian stratigraphy?

(e) In Indian stratigraphy, where do we put Neogene-Quaternary boundary?

(f) Explain type area and type section.

(g) Discuss the debated classification of Indian Gondwana.

(h) What do you mean by 'nappe'?

(i) What are mould and cast?

(j) Name two ammonoids and state their ranges.

(k) What is phylozone?

(l) What is relief? What is its usefulness in studying the topography?

2. Answer any *eight* questions : 5×8=40

(a) "Present is the key to the past." Express.

(b) Write a note on Cambrian explosion.

(c) How magnetic data is reliable tool in studying seafloor spreading?

(d) Write different types of strain ellipsoid.

(e) Define base level of erosion. Is it static or dynamics?

(f) What do you mean by 'punctuated equilibrium'?

(g) What are the differences between epifaunal and infaunal?

(h) What do you mean by 'magnitude' of an earthquake?

(i) Define erg and barchan.

(j) Write a note on morphological features of bivalvia.

3. Answer any *five* questions : 8×5=40

(a) What is Permian extinction?

(b) What are linear and planar structures?

(c) Add a note on K-Ar method of dating.

(d) What are the hazards associated with volcano?

(e) What are the landforms associated with glaciers?

(f) Explain type specimen—holotype and paratype of fossils specimen.

(g) How is epicentre of an earthquake determined?

4. Answer any *four* questions : 10×4=40

(a) Describe the classification of folds based on orientation of axis and axial plane.

(b) Describe karst topography.

(c) Illustrate the applications of microfossil in palaeogeography and palaeoclimate.

(d) Discuss the evolution of dinosaurs.

(e) Discuss the formation of island arc.

(f) How can a drainage pattern reflect lithology or structure?

5. Answer any *two* questions : 20×2=40

(a) Describe the sequence stratigraphy.

(b) Discuss the origin of the universe briefly.

(c) Describe the mechanism of faulting.

6. Answer any *four* questions : 10×4=40

(a) Discuss the Himalayan orogeny.

(b) Describe the Permian-Triassic boundary in Indian subcontinent.

(c) Write the differences between plate tectonics and continental drift theory.

(d) Discuss the morphometric analysis of drainage basin.

(e) Discuss igneous activities in India during Mesozoic period.

7. Answer any *two* questions : 20×2=40

(a) Discuss the morphology, classification and geological history of *(i)* trilobites or *(ii)* brachiopods.

(b) Describe in brief the stratigraphy of Meghalaya plateau or Singbhum craton.

(c) Discuss the Davisian cycle or Penck erosion cycle and cite Indian examples.

8. What are different types of microfossil? Add the significance of microfossil in petroleum exploration. 40

9. Discuss different types of stratigraphy. Which one you think suite best to classify the rocks of Arunachal Pradesh? Justify your answer. 40

10. Discuss the tectonic framework of India with special reference to North-East India. 40

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