Civil Services (Main) Examination, 2013

GEOLOGY

(Paper I)

Time Allowed : Three Hours **Maximum Marks : 250**

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.
Candidate has to attempt FIVE questions in all.
Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.
The number of marks carried by a question/part is indicated against it.
Wherever any assumptions are made for answering a question, they must be clearly indicated.
Word limit in questions, wherever specified, should be adhered to.
Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

SECTION 'A'

1. Write brief notes on the following in about 150 words each: **10×5=50**

- **(a)** Earth's interior as revealed from seismic waves
- **(b)** Relationship between Volcanic and Earthquake belts
- **(c)** Aeolian landforms
- **(d)** Difference between brittle and ductile deformation
- **(e)** Tonal variation in aerial photographs, and interpretation of lithology and structure

2. Describe the following:

- **(a)** Application of Radioactivity in determining age of rocks **20**
- **(b)** Oceanic – Oceanic plate convergence boundaries **20**
- **(c)** Geological application of Geographic Information System (GIS) **10**

3. Describe the following:

- **(a)** The classification and mechanics of faults **20**
- **(b)** Types of unconformities and their significance **20**
- **(c)** Mechanism of formation of island arcs with examples **10**

4. Write notes on the following:

- **(a)** Types of weathering **20**
- **(b)** Isostasy **20**
- **(c)** Paleomagnetic Reversals **10**

SECTION 'B'

5. Write critical notes on the following in about 150 words each: **10×5=50**

- **(a)** What are the prerequisites for a fossil to be useful in biostratigraphy?
- **(b)** How are stable isotope studies useful in paleoceanography?
- **(c)** How is Proterozoic subdivided?

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	(d)	What are the evidences of active tectonism in Himalaya?	
	(e)	How is quality of Aquifer related to porosity and permeability?	
6.		Explain the following:	
	(a)	Geological investigations in construction of Hydro-Power projects in Himalaya.	**20**
	(b)	Closing and opening of Cenozoic gateways and their implication on paleoclimate.	**20**
	(c)	Pliocene – Pleistocene boundary.	**10**
7.		Answer the following:	
	(a)	Describe various methods for Ground water exploration.	**20**
	(b)	Explain Hydrological cycle with neat diagram.	**20**
	(c)	Discuss types of Lithostratigraphic units with Indian examples.	**10**
8.		Answer the following:	
	(a)	Discuss Indian Ophiolite suites and their significance.	**20**
	(b)	Discuss the Paleogeography of India during transition from Paleogene to Neogene.	**20**
	(c)	Discuss the Permian – Triassic boundary.	**10**

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