

End-semester Examination, Spring Semester, Session 2018-19  
Precambrian and Phanerozoic Geology (ES4201)

Time: 2.5 hours

Maximum Marks : 80

Answers should be to the point and brief.

**PART I (Answer all the questions)**

1.	At what geological ages did Peninsular India get affected by tectonothermal events in the Proterozoic? Are these related to specific supercontinent cycles? If yes, name these.	2+2=4
2.	What are the lithological divisions of the Eastern Ghats Belt? Are these compatible with isotopic domains in the Belt? In which domain do you get massif-type anorthosites? Is there any evidence of ocean closure close to the Belt?	2+1+1=4
3.	Which Proterozoic orogen joined the North and South Indian blocks? How is this orogen extended to eastern and northeastern India?	1+1=2
4.	What are the tectonic divisions of the Himalayas and what are the thrusts/ faults that separate these domains? Where should you get rocks of the Precambrian shield of India in the Himalayas?	1+1+1=3
5.	What lies in the northern boundary of the Southern Granulite Terrain? How is this Terrain divided into different blocks?	1+1=2
6.	Where in India should you search for possible India-Antarctica, India-Sri Lanka and India-Madagascar connections in the past?	1+1+1=3
7.	What constitutes the Greater Indian Landmass and when did it form?	1+1=2

**PART II (Answer any four questions)**

8.	In an outline sketch of India, show the location of major Gondwana basin belts. Arrange the following Gondwana formations according to their stratigraphic position: Barren Measures, Panchet, Barakar, Talchir and Raniganj. Indicate the major coal-bearing formations among them. Briefly discuss the significance of Talchir Formation in understanding palaeoclimate.	4+4+2+5 = 15
9.	Shortly discuss the major changes on the Earth that occurred at the Archaean-Proterozoic boundary. When did the 'Great Oxidation Event' (GOE) occur on Earth? What were the effects of GOE on biological evolution? What is 'Boring Billion'? Can you link the 'Boring Billion' with supercontinent cycle? Mention the characteristic features of 'Purana' basins of India.	4+1+3+2 +2+3 = 15
10.	Explain the terms 'volcanic trap' and 'flood basalt'? Name three volcanic traps from India. Deliberate about the age and origin of the largest volcanic trap of India. Shortly discuss the effects of large volcanic traps on climate change and biological evolution citing example from India.	4+3+4+4 = 15
11.	What are greenstone belts? What are the characteristic volcanic and sedimentary rocks of Archaean greenstone belts? Name four greenstone belts from India (two each from Dharwar and Bastar Cratons). Mention the different models proposed for Neoproterozoic evolution of Eastern Dharwar Craton.	2+4+4+5 = 15
12.	Briefly discuss the different models of Archaean tectonics. Show the location of different volcano-sedimentary basins on a geological sketch map of Singhbhum craton. Mention the economic importance of Iron Ore Group and Singhbhum Shear Zone.	6+5+4 = 15
13.	Briefly discuss the Wilson Cycle and its relation to supercontinents. Shortly deliberate on the relationship between Gondwanaland break-up and marine sedimentation in Peninsular India. What were the consequences of collision between Indian plate and Eurasian plate on biological evolution and climate change? Which formation of the Assam basin contains both coal and petroleum occurrences?	5+4+4+2 = 15

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