Total No. of Printed Pages—4

6 SEM TDC DSE GEO (CBCS) 3 (H)

2025

(May)

GEOLOGY

(Discipline Specific Elective)

(For Honours)

Paper : DSE–3

(Earth and Climate)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

(*Marks* : *10*)

1. Fill in the blanks/Choose the correct option : 1×5=5

(a) The ocean which extends from the east coast of Africa is _____ (Pacific/Atlantic/Indian) Ocean.

(b) Oxygen constitutes about _____ (78%/21%/0·9%/0·04%) of the atmosphere.

(c) The International Date Line follows the _____ longitude passing through the Pacific Ocean.

(d) In case of positive feedback, the value of feedback factor (f) is _____.

(e) Heat capacity is the product of the density (in gm/cc) of a heat-absorbing material and its _____.

2. Discuss briefly the different types of climate forcing and their influence on climate system. 5

UNIT—II

(***Marks : 10***)

3. Discuss the role of atmosphere in maintaining Earth's heat budget. 4

4. How does the interaction between exogenic and endogenic heat sources influence the climate system? 3

5. Discuss the role of vegetations in maintaining Earth's heat budget. 3

(b) Pleistocene glacial–Interglacial cycles

(c) Marine isotope stages

UNIT—VI

(*Marks : 7*)

11. Discuss the influence of Himalayan orogeny on Indian monsoon. How does the Indian Ocean dipole affect Indian monsoon? 4+3=7

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UNIT—III

(*Marks : 10*)

6. Write short notes on any *two* of the following : 4×2=8

   (a) Stratosphere and its role in controlling Earth's climate

   (b) Mixed layer depth and its effect on climate

   (c) Global ocean conveyor belt

7. Fill in the blanks : 1×2=2

   Sea ice comprises around _____% of Earth's permanent ice cover by area and _____% by volume.

UNIT—IV

(*Marks : 8*)

8. Discuss the role of human beings on climate change and their probable future effects. 5

9. Discuss the archives of climate change. 3

UNIT—V

(*Marks : 8*)

10. Write on any *two* of the following : 4×2=8

    (a) Role of precision and obliquity on Earth's climate