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3 (Sem-2/CBCS) GGY HC 2

2022

GEOGRAPHY

(Honours)

Paper : GGY-HC-2026

(Climatology and Biogeography)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer ***any seven*** of the following questions by choosing the most appropriate option given against each question : $1 \times 7 = 7$

(a) The headquarters of the Indian Meteorological Department (IMD) is located at which of the following city ?

(i) Bangalore

(ii) Dehradun

(iii) New Delhi

(iv) Pune

Contd.

- (b) The coldest layer of the earth's atmosphere is —
- (i) Lower starting point of the mesopause
 - (ii) Outer boundary of the ozonosphere
 - (iii) Upper boundary of the troposphere
 - (iv) Sporadic E-layer within the ionosphere
- (c) The term 'Edaphic Factors' is synonymously used for —
- (i) Factors influencing distribution of plants
 - (ii) Factors influencing soil formation processes
 - (iii) Factors influencing food chain within ecosystem
 - (iv) Factors influencing distribution of insolation
- (d) Which of the following country does not fall within Boreal Forest or Taiga Biome ?
- (i) Canada
 - (ii) Finland
 - (iii) Madagascar
 - (iv) Russia

- (e) In which of the following National Park Red Panda is found ?
- (i) Keibul Lamjao National Park
 - (ii) Nokrek National Park
 - (iii) Simlipal National Park
 - (iv) Eravikulam National Park
- (f) 'Megatherms', as per Koppen's climate classification scheme, are —
- (i) Plants growing in hot deserts
 - (ii) Plants growing in very high altitude areas
 - (iii) Plants growing in hot and humid climate
 - (iv) Plants growing in polar areas
- (g) G. T. Trewartha designated the dry climatic areas by the letter —
- (i) A
 - (ii) B
 - (iii) C
 - (iv) D

- (h) Which of the following is not an example of 'heterotroph' in an ecosystem ?
- (i) Snakes
 - (ii) Green Plants
 - (iii) Mosquitoes
 - (iv) Herbivore animals
- (i) Largest depletion hole in the Ozone layer of the atmosphere is detected over —
- (i) Antarctica
 - (ii) Industrial Region of Eastern USA
 - (iii) Manchuria Industrial Region of China
 - (iv) Northern areas of the Greenland island
- (j) The terms 'Roaring Forties' and 'Furious Fifties' are associated with -
- (i) Hurricanes
 - (ii) Typhoons
 - (iii) Tornadoes
 - (iv) Westerlies

2. Answer **any four** of the following questions in very short : 2×4=8

- (a) What do you mean by 'lapse rate' ?
- (b) What is "Ferrel's law' in Climatology ?
- (c) Mention *any two* endemic species of animals found in 'Neotropical Zoogeographical Region'.
- (d) Mention *any two* processes associated with soil formation.
- (e) What do you mean by 'biodiversity hotspot' ?
- (f) What is 'albedo' of the earth atmosphere ?
- (g) Write *any two* examples of 'local wind'.
- (h) Cite *one* example of each of *producer* and *consumer* in a pond ecosystem.

3. Write short answer of **any three** of the following questions : 5×3=15

- (a) Write an account of the composition of the earth's atmosphere.
- (b) What do you mean by '*Inversion of Temperature*' ? Mention the factors responsible for temperature inversion.

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- (c) What do you mean by 'humidity'? Differentiate between 'absolute' and 'relative' humidity.
- (d) Elucidate the concept of 'Heat Budget' of the Earth's atmosphere.
- (e) With examples, briefly describe the structure of a grassland ecosystem.
- (f) With a neat diagram, discuss different horizons found in a mature soil profile.
- (g) Briefly discuss different factors associated with the soil formation process.
- (h) Briefly explain the mechanism associated with the origin of monsoon in Indian subcontinent.

4. Answer **any three** of the following questions :

10×3=30

(a) What is biogeography? Discuss its scope and significance. 2+4+4=10

(b) What do you mean by 'insolation'? Explain different factors affecting global distribution of 'insolation'. 2+8=10

- (c) Differentiate between 'Tropical' and 'Extra Tropical Cyclones' with special reference to formation and weather conditions associated with these.
- (d) What is 'biome' ? Classify different biomes found over the globe and discuss *any one* of these in detail. 2+3+5=10
- (e) Discuss in detail the scheme of Climate classification put forward by G. T. Trewartha.
- (f) With a neat diagram, discuss how temperature condition changes in different structural layers of the Earth's atmosphere.
- (g) With examples, discuss the factors affecting geographical distribution of plants and animals over the earth's surface.
- (h) With a diagram, explain different air pressure belts observed over the earth surface and the planetary wind system associated with these air pressure belts. 4+6=10