

**2020**

**GEOGRAPHY — HONOURS**

**Sixth Paper**

**Full Marks : 100**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**Module - XI**

**(Philosophy of Geography)**

**(Marks : 50)**

**Category - A**

Answer **any one** question (within **600** words).

1. Trace the development of geographical ideas during medieval period. What were the contributions of Varenius? 20+10
2. Explain how the study of Geography is related to the concept of areal differentiation. 30
3. Elaborate on the importance and significance of Empiricism and Positivism in the growth of scientific explanations in Geography. 30
4. What are the salient features of the Radical School of geographical thought? Mention two major Radical geographers and their contributions. 15+15
5. Discuss the basic tenets of Behaviouralism mentioning its strengths and weaknesses. 15+15

**Category - B**

6. Answer **any two** questions (within **150** words) : 10×2
  - (a) State in brief the relation of Geography with History.
  - (b) Briefly mention the principles of Humanistic Geography.
  - (c) State the characteristics of Structuralism.
  - (d) Mention the contributions of Humboldt.
  - (e) Distinguish between 'environmental determinism' and 'possibilism'.
  - (f) State the increasing importance of quantification in Geography.
  - (g) How do models help explanations in Geography?
  - (h) Distinguish between location and space in Geography.

**Please Turn Over**

**Module - XII**  
**(Contemporary Issues in Geography)**  
**(Marks : 50)**  
**Category - A**

Answer **any one** question (within **600** words).

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|---|-------|
| 7. Classify drought and elucidate the environmental impact of drought.  | 10+20 |
| 8. Discuss the factors responsible for contamination of groundwater with suitable examples. Suggest suitable remedial measures. | 20+10 |
| 9. Explain the mechanism of river bank erosion with special reference to such erosion in West Bengal.                           | 25+5  |
| 10. Define globalisation. Discuss the economic impact of globalisation.   | 5+25  |
| 11. Examine the role of economic disparity as constraint of development.  | 30    |

**Category - B**

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|---|------|
| 12. Answer <b>any two</b> questions (within <b>150</b> words) :           | 10×2 |
| (a) Why is flood considered as a quasi-natural hazard?                    |      |
| (b) State the precautionary measures to mitigate earthquake hazard.       |      |
| (c) Briefly describe the environmental impact of hailstorm.               |      |
| (d) Assess in brief the impact of desertification.                        |      |
| (e) How does gender bias affect social inequality?                        |      |
| (f) Evaluate the socio-economic importance of food security.              |      |
| (g) Specify the indicators of human development.                          |      |
| (h) Distinguish between nutritional poverty line and income poverty line. |      |
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Write the answer to  
**Group-A** and **Group-B** in one  
answer-book and **Group-C** in a  
separate answer-book.

**2020**

**GEOLOGY — HONOURS**

**Sixth Paper**

**(Unit - I)**

**Full Marks : 75**

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as far as practicable.*

**Group - A**

**[Sedimentology]**

**(Marks : 20)**

Answer **any two** of the following questions.

1. Briefly state how does the nature of climbing ripple laminations change with the variation in rate of bedload transfer and suspension fall out. 10
2. Furnish the classification of Limestone as proposed by Dunham. 10
3. Briefly state the expected variation in sandstone composition with the variation in tectonic setting. 10
4. Briefly state the depositional features based on which the debris flow deposits can be recognized in the rock record. 10
5. Define liquification. What is the difference between liquefaction and fluidization? Give one example of product of each of these processes. 4+4+2
6. Write brief notes on **any two** of the following : 5×2
  - (a) BIF
  - (b) Parting lineation
  - (c) Geopetal fabric
  - (d) Pseudomatrix.
7. Distinguish between **any two** of the following pairs : 5×2
  - (a) Oligomict and Polymict conglomerate
  - (b) Bio-pel Sparite and Pel-bio Sparite
  - (c) Current ripple and Wave ripple
  - (d) Laminar flow and Turbulent flow.

**Please Turn Over**

**Group - B**  
**[Principles of Stratigraphy]**

**(Marks : 15)**

Answer **any two** of the following questions.

8. State the Law of Superposition. Explain its significance. 7½
9. Briefly state the principles of U-Pb dating method. 7½
10. Define a Formation. How would you proceed to define the constituent formal lithounits under a formation? 3+4½
11. What is meant by a 'biozone'? Write a brief note on the Concurrent Range Zone. 3+4½
12. Write brief notes on **any one** of the following : 7½
- (a) Stratotype
  - (b) Chemostratigraphy
  - (c) Time-stratigraphic units
  - (d) Cyclothem.

**Group - C**  
**[Economic Geology]**  
**(Marks : 40)**

13. Answer **any three** questions : 8×3
- (a) Give the evidences that support syngenetic origin of chromite deposits.
  - (b) What is mineral beneficiation? Write in brief the relevant steps to upgrade a low-grade porphyry copper deposit.
  - (c) Write briefly on metamorphism of proto-ore.
  - (d) What is stockwork deposit? Name two ore deposit types and their associated metals where such morphology is encountered.
  - (e) What are 'deep sea ferromanganese nodules'? Comment on their origin.
  - (f) 'Mineral deposits are distributed non-uniformly in space.' — Discuss.
  - (g) Give a brief account on the Tungsten deposit of Rajasthan.
  - (h) Write briefly on the raw materials used for fertilizer industry.
14. Answer **any one** question :
- (a) Write in detail on copper deposit of Singhbhum with reference to geologic setting, mode of occurrence, mineralogy, age and genesis. 16

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***P(III)-Geology-H-6(Unit-I)***

(b) Write short notes on ***any two*** of the following :

8×2

- (i) Rank and grade of coal
  - (ii) Diamond deposit of Central India
  - (iii) Migration of petroleum
  - (iv) Graphite deposit of India
  - (v) Alluvial placer.
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**2020**

**ZOOLOGY — HONOURS**

**Sixth Paper**

**(Unit - II)**

**(Animal Biotechnology and Applied Zoology)**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

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as far as practicable.*

Answer **question no. 1** and **any two** questions from the rest.

1. Answer **any two** of the following : 10×2
- (a) Mention two uses of lac in industry.
  - (b) What is the significance of IPM?
  - (c) Name two biological contaminants in cell culture.
  - (d) What is royal jelly? Mention its significance.
  - (e) Name the chemical constituents of natural silk.
  - (f) What do you mean by therapeutic index?
  - (g) Mention the role of HCG in induced breeding of fish.
  - (h) What is DNA microinjection?
2. (a) Give a brief account of non-viral methods used during gene therapy.
- (b) Elaborate the process of artificial insemination (AI) and embryo transfer (ET) technology. 6+4½+4½
3. (a) Describe the applications of transgenic technologies in conservation biology.
- (b) What are the probable risks of using transgenic animals in poultry and dairy industry?
- (c) Differentiate between finite and continuous cell lines. 6+6+3
4. (a) What do you mean by 'natural' and 'artificial' hybridizations?
- (b) Write a short account on heredity of hybrids in the field of aquaculture, citing suitable examples.
- (c) Enlighten 'irradiation of spermatozoa' in the light of gynogenesis in fish. (3+3)+4½+4½

**Please Turn Over**

5. What is Proteomics? Describe different methods of transcriptome analysis. Distinguish between microarray-based and non array-based methods of transcriptome analysis, giving merits and demerits of each of them. 3+4½+7½
6. Describe the basic requirements to design a deep litter for poultry birds. State the merits and demerits of deep litter system of poultry keeping. Describe the process of rearing of silkworm in an ideal rearing room. 4½+4½+6
7. What do you mean by monolayer vs suspension culture? Give one example of each. Name two human cell lines. What do you mean by the terms —
- (a) dose and dosage
- (b)  $LC_{50}$  and  $LD_{50}$ . 3+3+3+3+3
8. Write notes on : 4½+6+4½
- (a) Process of eyestalk ablation
- (b) Anti-sense technology as a tool of gene therapy
- (c) Components of M – 1993.
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2020

ZOOLOGY — HONOURS

Sixth Paper

(Unit - I)

Full Marks : 50

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*Candidates are required to give their answers in their own words as far as practicable.*

Answer **question no. 1** and **any two** questions from the rest.

1. Answer **any two** questions : 10×2
- (a) What are synomones? Give example.
  - (b) Mention two functions of prolactin.
  - (c) Distinguish between autocrine and paracrine secretion.
  - (d) Comment on Grave's disease.
  - (e) State the function of FSH in male and in female.
  - (f) What is Bruce Effect?
  - (g) Give the full form and one function of CCK-PZ.
  - (h) Name two key components that are responsible for bioluminescence in insects.
2. (a) What do you understand by feedback control? Explain with a suitable example.
- (b) Distinguish between the mechanism of action of protein hormone and steroid hormone.
- (c) Name the hormone secreted from pineal gland and state its functions. 6+4½+(1½+3)
3. (a) Describe the mechanism of action of IP<sub>3</sub> and DAG as second messenger.
- (b) How T<sub>3</sub> is structurally different from T<sub>4</sub>? Mention functional significance of T<sub>3</sub>. 7½+3+4½
4. (a) State the role of glucagon in glucose homeostasis.
- (b) What is neurohormone? Give example.
- (c) Comment on Exophthalmic Goitre.
- (d) What do you mean by endocrine disruptors? 4½+(3+1½)+3+3
5. (a) Discuss the effect of any one environmental factor in sex determination of fish.
- (b) State the role of vitamin D<sub>3</sub> in calcium metabolism.
- (c) Name the effectors of cAMP and DAG. 6+6+3

**Please Turn Over**



6. (a) Write the steps involved in biosynthesis of insulin from preproinsulin.  
(b) State the source, structure and function of secretin.  
(c) Mention the source and function of Ecdysone. 7½+4½+3
7. (a) Distinguish between Estrous and Menstrual cycle.  
(b) Discuss the role of iodide pump in T<sub>3</sub>/T<sub>4</sub> biosynthesis.  
(c) Comment on the environmental signalling in sex reversals in molluscs. 6+4½+4½
8. (a) Describe the vaginal changes along with diagram and hormonal profile during each phases of estrous cycle.  
(b) Discuss the hormonal basis of insect diapause. (6+3)+6
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