159/Env.Sc   UG/1st Sem/ENVS(H)/CCL-01/19

U.G. 1st Semester Examination – 2019
ENVIRONMENTAL SCIENCE
[HONOURS]
Course Code : ENVS(H)/CCL-01

Earth and Earth Surface Processes

Full Marks : 40   Time : 2½ Hours

The figures in the right-hand margin indicate marks.

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

1. Write short notes on (any **five**):   2×5=10

   a) Earth's mantle

   b) Tertiary period

   c) Volcanism

   d) Antiformal structure

   e) Higher order streams

   f) Fluvial deposits

   g) Landslide

   h) Waterfalls

2010-3600

[Turn over]

2. Write notes on any **two** of the following: 5×2=10

   a) Eolian Process

   b) Weathering of rocks

   c) Sedimentation Process

   d) Vindhyan System

3. State and explain the following (any **two**):   10×2=20

   a) What is magmatism? How magmatic rocks are being formed?

   b) How metamorphic rocks are being formed? State different stages of metamorphism.

   c) How perennial river system is being formed? What is the difference between ephimeral and perennial river system?

   d) Briefly discuss about Western and Eastern Ghats.

U.G. 1st Semester Examination - 2019
ENVIRONMENTAL SCIENCE
[HONOURS]
Course Code : ENVS(H)/CCL-02

Environmental Chemistry & Environmental Physics

Full Marks : 40   Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.
Candidates are required to give their answers in their
own words as far as practicable.

1. Answer any **five** of the following: 2×5=10

   a) Define alkali metal and transition metal with their electronic configurations. Give at least one example in each case.

   b) Define primary and secondary standard solutions.

   c) What is thermal inversion? Explain with a diagram.

   d) Define Kirchhoff's laws. Mention the advantages and limitations of Kirchhoff's laws.

   e) Define thermodynamic systems. Give examples in each case.

[Turn over]

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f) Which method is used for estimation of organic carbon in soil? State the relationship between organic matter content and organic carbon in soil.

g) Define stability constant. Mention the conditions of a complexiometric titration.

h) Define point and non-point sources of water pollution with examples.

2. Answer any **two** of the following: 5×2=10

   a) Discuss briefly the mechanism of heat transfer in the environment.   5

   b) What are the basic principles of volumetric analysis? Define physiochemical and biological properties of water.   2+3=5

   c) What is Darcy's Law? Mention its limitations. Define Rayleigh and Mie scattering.   1+1+3=5

   d) Write short note on the following (any **one**):   5×1=5

      i) Metal chelates and their applications

      ii) Acid rain: Causes and consequences

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3. Answer any **two** of the following: 10×2=20

   a) Define the following terms:

      Electron affinity, electronegativity and ionization potential. What is an electrochemical cell and how does it work? How do you calculate pH of a buffer?   (2+2+2)+2+2=10

   b) How dissolved oxygen, alkalinity and iron contents can be measured in water samples? What do you mean by protic and aprotic solvents? Give examples. Define standard potential and formal potential with examples.   (2+2+2)+2+2=10

   c) What is soil profile? Mention inorganic and organic components of soil. Write a short note on principles and applications of photovoltaic and solar cells.   2+2+(3+3)=10

   d) What is photochemical smog? Write down the major catalytic cycles responsible for ozone layer depletion. What is lapse rate? What is plume behaviour? Mention its types and importance.   2+3+2+(1+2)=10