U.G. 5th Semester Examination-2020
ENVIRONMENTAL SCIENCE
[HONOURS]
Course Code : ENVS-H-CC-L-12
(Evolutionary Biology)

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: $2\times5=10$
   i)   Write down different periods of Palaeozoic era in ascending order.
   ii) What are the preconditions for adaptive radiation?
   iii) What do you mean by founder effect?
   iv) Enlist the factors affecting Hardy-Weinberg equilibrium.
   v)   What is reproductive isolation?
   vi) Why is monogamy prevalent among birds?
   vii) Distinguish between homologous and analogous structures.
   viii) Distinguish between convergent and divergent evolution.

[Turn over]

2. Answer any **two** of the following: $5\times2=10$
   i)   List the characteristics of fossils.   How is the age of a rock sample estimated?
   ii) Enumerate the key concepts of the Darwinian theory of evolution.
   iii) How habitat fragmentation disrupts a co-evolutionary dynamic among parasites and their hosts?
   iv) Why is genetic variation important? What form of genetic diversity is most important for retaining evolutionary potential and why?

3. Answer any **two** of the following : $10\times2=20$
   i)   Define sexual selection. Describe its mechanisms among different animals.
                                          $2+8=10$
   ii) Explain the endosymbiotic theory. Describe the origin and evolution of an eukaryotic cell.
                                          $3+7=10$
   iii) How are phylogenetic trees constructed? State   their   significance in establishing affinities and evolutionary relationships among different organisms. $5+5=10$
   iv) State the theory of island biogeography. Describe how the following factors interact with colonization and extinction rates to predict species richness : (i) the distance of the island from the mainland; (ii) size of the island.
                                          $5+5=10$