

**U.G. 5th Semester Examination-2021****ENVIRONMENTAL SCIENCE****[HONOURS]****Course Code : ENVS-H-CC-L-12****(Evolutionary Biology)**

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. Answer any **five** of the following:  $2 \times 5 = 10$
- Why is Precambrian named as super eon?
  - How does sexual selection differ from natural selection?
  - State the principal difference between evolution and natural selection.
  - Why paleozoic era is called the most diverse era?
  - Define mutation. What is the rate of spontaneous mutation?
  - What is molecular clock? How is it used to infer phylogenies?
  - Name the first vascular plant that ever existed on the earth. Mention its geological distribution.

- h) What do you mean by vestigial structure? Give an example.

2. Answer any **two** of the following:  $5 \times 2 = 10$
- State the difference between allopatric and sympatric speciation.
  - Explain how geographical isolation can be a cause of the origin of a new species.
  - How did the multi-membraned organelles evolve? Explain in brief.
  - Between aerobic and anaerobic metabolism which one is primitive? Justify your answer.
3. Answer any **two** of the following:  $10 \times 2 = 20$
- Compare and contrast stabilizing, directional, and disruptive selection. Give example of each.  $10$
  - Discuss coevolution in the context of competition, predators and prey and mutualism.  $10$
  - Explain the key concepts in the evolution theory of Darwin.  $10$
  - What do you mean by mass extinction? Mention two major mass extinction events with their geological ages. Mention the possible reasons behind those mass extinction events.  $2+3+5=10$

*[Turn over]*