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ZOOLOGY

( Major )

Paper : 6.2

( Evolution and Adaptation )

Full Marks : 60

Time : 3 hours

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

1. Choose the correct answer : 1×7=7

(a) Which of the following helps a prey species advertise to predators that it is unpalatable?

(i) Primary compounds

(ii) Aposematic colouration

(iii) Cryptic colouration

(iv) All of the above

(b) For a Batesian mimicry system to work, which of the following statements are true?

- (i) The predator must be able to recognize the model
- (ii) The model must outnumber the mimic
- (iii) Both (i) and (ii)
- (iv) None of the above

(c) A non-toxic organism whose colouration resembles a poisonous organism is an example of

- (i) Batesian mimicry
- (ii) Müllerian mimicry
- (iii) cryptic colouration
- (iv) None of the above

(d) The first forms of life were

- (i) chemoautotrophs
- (ii) autotrophs
- (iii) eukaryotes
- (iv) chemoheterotrophs

(e) Two zoogeographical regions separated by high mountain ranges are

- (i) Oriental and Australian
- (ii) Nearctic and Palaearctic
- (iii) Palaearctic and Oriental
- (iv) Neotropical and Ethiopian

(f) The ancestral man in the Pleistocene was

(i) Australopithecus

(ii) Neanderthal

(iii) Dryopithecus

(iv) Pliopithecus

(g) In primitive earth, energy was predominated by

(i) lightning

(ii) volcanic eruptions

(iii) UV light

(iv) All of the above

2. Write briefly on the following : 2×4=8

(a) Allopatric speciation

(b) Cro-Magnon

(c) Adaptive radiation

(d) Industrial melanism

3. Write short notes on any *three* of the following : 5×3=15

(a) Biochemical evidences of organic evolution

(b) Volant adaptation

- (c) Cryptic colouration
- (d) Biogeographical realms
- (e) Miller-Urey experiment

4. Highlight the main principles of Neo-Darwinism and Neo-Lamarckism. 10

Or

Discuss the concept of modern synthetic theory of evolution. 10

5. What were the main drawbacks of Hugo de Vries' mutation theory? Add a note on the concept of germplasm theory. 5+5=10

Or

Trace the evolutionary history of horse based on the available fossil records by providing necessary illustrations. 8+2=10

6. Define microevolution. Provide examples to support this concept. How does it differ from megaevolution? 2+3+5=10

Or

Explain with examples the genetic and geographical modes of speciation. 5+5=10

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