

ISC Class 12 Biology Question Paper 2017

BIOLOGY THEORY (PAPER-1)

Part I (20 marks)

Answer all questions

Question 1

- (a) Give a brief answer for each of the following: [4]
- (i) Why do Green plants start evolving CO_2 instead of O_2 , at high temperatures?
 - (ii) Define *Apomixis*.
 - (iii) What is a *Recon*?
 - (iv) Why are the spores of *Bacillus thuringiensis* used as bio insecticide?
- (b) Each of the following question(s)/statement(s) has four suggested answers. Choose the correct option in each case. [4]
1. Initiation codon of protein synthesis in Eukaryotes:
 - (i) GUA
 - (ii) GGA
 - (iii) CCA
 - (iv) AUG
 2. Type of Interaction where an individual sacrifices its own welfare (life) for the benefit of another animal of its own species:
 - (i) Altruism
 - (ii) Scavenging
 - (iii) Protocooperation
 - (iv) Commensalism
 3. Wings of Insect and Birds are examples of:
 - (i) Analogous
 - (ii) Homologous
 - (iii) Vestigial
 - (iv) Atavism

4. The pressure of the cell contents on the cell wall is known as:

- (i) Wall pressure
- (ii) Osmotic pressure
- (iii) Turgor pressure
- (iv) Diffusion pressure

(c) Give a scientific term for each of the following: [4]

- (i) An act of expelling the full-term foetus from mother's uterus at the end of gestation.
- (ii) Entry of pollen tube into an ovule through integuments.
- (iii) An alternative form of the single gene which influences the same character and produces different expressions in different individuals of a species.
- (iv) The study of human population covering all aspects and parameters.

(d) Expand the following abbreviations: [4]

- (i) MTP
- (ii) IVF
- (iii) HIV
- (iv) DPD

(e) Name the scientists who have contributed to the following: [4]

- (i) Discovered the fossil of Cro-Magnon man.
- (ii) Classified active and passive absorption of water by roots.
- (iii) Reported Haemophilia.
- (iv) Discovered double fertilization.

Part II (50 marks)

SECTION A

Answer any *two* questions.

Question 2

- (a) Differentiate between *Apes* and *Man* with respect to the following characteristics: [3]
- (i) Posture
 - (ii) Brow ridges
 - (iii) Cranial capacity
- (b) Define *protobionts*. [1]
- (c) What is *cognogeny*? [1]

Question 3

- (a) Explain *any three* molecular (genetic) evidences in favour of organic evolution. [3]
- (b) Define *biogenesis*. [1]
- (c) Define *fossils*. [1]

Question 4

- (a) List *any three* drawbacks of Darwinism. [3]
- (b) State Hardy Weinberg's principle. [1]
- (c) Differentiate between *Directional natural selection* and *Disruptive natural selection*. [1]

SECTION B

Answer any *two* questions.

Question 5

- (a) Give *four* anatomical differences between a *dicot leaf* and *monocot leaf*. [4]
- (b) Briefly describe the secretory phase of the menstrual cycle. [4]
- (c) Define: [2]
 - (i) Menarche
 - (ii) Actinomorphic symmetry

Question 6

- (a) Give a graphic representation of the Hatch Slack or C4 cycle. [4]
- (b) Give *two* significant differences between: [4]
 - (i) *Transpiration* and *Guttation*
 - (ii) (i) *Chlorophyll 'a'* and *Chlorophyll 'b'*
- (c) Define the following: [2]
 - (i) Amniocentesis
 - (ii) Polyembryony

Question 7

- (a) Describe K⁺ transport stomatal mechanism. [4]
- (b) Draw a neat-labelled diagram of L.S. of anatropous ovule. [4]
- (c) Differentiate between the following: [2]
 - (i) *Spermatogenesis* and *oogenesis*
 - (ii) *Apocarpous ovary* and *syncarpous ovary*.

Question 8

- (a) Explain Pleiotropy with reference to phenylketonuria. [4]
- (b) Explain the mechanism of transcription in a prokaryotic cell. [4]
- (c) Explain Rh factor incompatibility during pregnancy. [2]

Question 9

- (a) Discuss the various In-situ and Ex-situ strategies for conservation of biodiversity. [4]
- (b) List *any four* applications of tissue culture. [4]
- (c) Mention the causative agent and the preventive measures for each of the following: [2]
 - (i) Gonorrhoea
 - (ii) Pneumonia

Question 10

- (a) Name the components of lac operon and discuss their role. [4]
- (b) Give the significance of transgenic animals. [4]
- (c) Give *one* significant difference between: [2]
 - (i) *Electroporation* and *Gene Gun*.
 - (ii) *ECG* and *EEG*