

ISC Class 12 Biology Question Paper 2015

PART I (20 Marks)

Answer all questions.

Question 1

- (a) Give a brief answer for each of the following: [4]
- (i) What is *heterosis*?
 - (ii) Why is non-cyclic photo phosphorylation considered as a non-cyclic pathway?
 - (iii) Define *test cross*.
 - (iv) What are *introns*?
- (b) Each of the following question(s)/statement(s) has four suggested answers. Choose the correct option in each case. [4]
1. Triple Fusion involves:
 - (i) Fusion of one male gamete with female gamete
 - (ii) Fusion of tube nucleus with generative nucleus
 - (iii) Fusion of two polar nuclei
 - (iv) Fusion of second male gamete with two polar nuclei
 2. An EEG represents spontaneous electrical activity of the:
 - (i) Kidney
 - (ii) Spinal cord
 - (iii) Heart
 - (iv) Brain
 3. The genotype of a person with Turner's syndrome will be:
 - (i) 44+XXY
 - (ii) 44+XYY
 - (iii) 44+XO
 - (iv) 44+XXYY
 4. Transcription is the transfer of genetic code from a DNA molecule to:
 - (i) RNA molecule
 - (ii) Second DNA molecule
 - (iii) Ribosomal sub unit
 - (iv) Sequence of amino acids in a protein molecule
- (c) Give a scientific term for each of the following: [4]
- (i) The first formed category of photosynthetic organisms.

- (ii) The surgical removal of a section of fallopian tube.
 - (iii) An animal behaviour which benefits others but is of no advantage to itself.
 - (iv) The hydrostatic pressure developed inside the cell on the cell wall due to endosmosis.
- (d) Expand the following abbreviations: [4]
- (i) STD
 - (ii) NADP
 - (iii) MRI
 - (iv) DDT
- (e) Name the scientists who are associated with the following: [4]
- (i) Discovered the fossil of Australopithecus
 - (ii) Microspheres
 - (iii) Coined the term *Diffusion Pressure Deficit*
 - (iv) Invented the CT scan

PART II (50 Marks)

SECTION A

Answer any two questions.

Question 2

- (a) Give *any three* characters that have developed during human evolution. [3]
- (b) Explain the term *chemogeny*. [1]
- (c) Give *any two* distinctive features of *Dryopithecus*. [1]

Question 3

- (a) Explain the evolution of giraffe's neck according to Lamarck's theory of evolution. [3]
- (b) Give two chromosomal similarities between man and apes. [1]
- (c) Name *any two* temporary embryonic structures in vertebrates which provide evidence for evolution. [1]

Question 4

- (a) *Persons suffering from sickle cell anaemia are at an advantage in Malaria infested areas.* Explain. [3]
- (b) Define the term *gene flow*. [1]
- (c) What are analogous organs? Describe with one example from the plant kingdom. [1]

SECTION B

Answer any *two* questions.

Question 5

- (a) With the help of diagrams, name and describe the different types of placentation seen in angiosperms. [4]
- (b) Give *four* points of anatomical differences between a monocot stem and a dicot stem. [4]
- (c) Define the following terms: [2]
 - (i) Racemose inflorescence
 - (ii) Osmotic pressure

Question 6

- (a) Draw a diagram of the internal structure of the human ovary. [4]
- (b) Define the term *water potential*. What are its components? Explain. [4]
- (c) Give definition and importance of: [2]
 - (i) Imbibition
 - (ii) Parturition

Question 7

- (a) Give *four* adaptations in flowers pollinated by insects. [4]
- (b) Describe the mass flow hypothesis for translocation of organic solutes (food) in plants. [4]
- (c) Write a brief note on the causes of infertility. [2]

SECTION C

Answer any *two* questions.

Question 8

- (a) Give *any four* reasons for Mendel's success. [4]
- (b) Briefly describe the technique employed in DNA fingerprinting. [4]
- (c) Give *any two* features of *Genetic Code*. [2]

Question 9

- (a) Explain the mechanism of action of T cells to antigens. [4]
- (b) Explain how insulin can be produced using recombinant DNA technology. [4]
- (c) What is pisciculture? Give *one* advantage. [2]

Question 10

- (a) Name the causative organism and preventive measures for each of the following: [4]
- (i) Swine flu
 - (ii) Typhoid
 - (iii) Filariasis
 - (iv) Syphilis
- (b) State *four* causes and *four* consequences of population growth. [4]
- (c) Differentiate between: [2]
- (i) Cannabinoids and Barbiturates
 - (ii) Biotic potential and Carrying capacity