

# ISC Class 12 Biology Question Paper 2016

## BIOLOGY PAPER – 1 (THEORY)

### (Botany and Zoology)

#### Question 1

(a)	Give a brief answer for each of the following:		[4]
	(i)	What is <i>central dogma</i> ?	
	(ii)	Define <i>cryopreservation</i> .	
	(iii)	What is <i>symbiosis</i> ?	
	(iv)	Explain the term <i>perianth</i> .	
(b)	Each of the following question(s)/statement(s) has four suggested answers. Choose the correct option in each case.		[4]
	1.	The curve showing the amount of light absorbed at each wavelength is:	
	(i)	Action spectrum	
	(ii)	Absorption spectrum	
	(iii)	Quantum yield	
	(iv)	Quantum requirement	
	2.	After fertilisation, the integument of an ovule develops into:	
	(i)	Seed	
	(ii)	Seed coat	
	(iii)	Fruit	
	(iv)	Fruit wall	
	3.	Meselson and Stahl's Experiment proved:	
	(i)	Transduction	
	(ii)	Transformation	
	(iii)	DNA is the genetic material	
	(iv)	Disruptive DNA replication	
	4.	The act of expelling the full term foetus from the uterus is termed as:	
	(i)	Gestation	
	(ii)	Implantation	
	(iii)	Parturition	

	(iv)	Capacitation	
(c)	Give scientific terms for each of the following:		[4]
	(i)	The smallest unit of DNA which can mutate.	
	(ii)	Type of water absorption by roots where metabolic energy is required.	
	(iii)	Statistical study of human population.	
	(iv)	Multiple effects of a gene on the phenotype of an organism.	
(d)	Expand the following abbreviations:		[4]
	(i)	rDT	
	(ii)	BAC	
	(iii)	SSBP	
	(iv)	IUCD	
(e)	Name the scientists who have contributed to the following:		[4]
	(i)	Reverse transcription	
	(ii)	Photorespiration	
	(iii)	Principle of limiting factors	
	(iv)	Photolysis of water	

**PART II (50 Marks)**  
**SECTION A**

*Answer any two questions.*

**Question 2**

- (a) Mention *three* features of the Neanderthal Man. [3]
- (b) Differentiate between *connecting link* and *missing link*. [1]
- (c) What is *adaptive radiation*? [1]

**Question 3**

- (a) Give an account of Lederberg's replica plating experiment to show the genetic basis of evolution. [3]
- (b) Define *phylogeny*. [1]
- (c) What is *Founder's effect*? [1]

#### Question 4

- (a) With reference to the levels of organisation, differentiate between *living organisms* and *non-living objects*. [3]
- (b) Mention *one* cause for variation in nature. [1]
- (c) What is the difference between the teeth of apes and the teeth of man? [1]

#### SECTION B

Answer any *two* questions.

#### Question 5

- (a) Give a graphic representation of the C<sub>3</sub> cycle. [4]
- (b) Discuss the role of cambium in secondary growth of dicot stems. [4]
- (c) State *two* advantages of vegetative propagation. [2]

#### Question 6

- (a) Explain the role of hormones during the menstrual cycle. [4]
- (b) Give *four* adaptations shown by flowers pollinated by wind. [4]
- (c) Give *two* differences between *heart wood* and *sap wood*. [2]

#### Question 7

- (a) Explain *chemiosmotic hypothesis* for ATP synthesis. [4]
- (b) Draw a neat labelled diagram of the vertical section of a monocot leaf. [4]
- (c) Mention *any two* functions of the human placenta. [2]

#### SECTION C

Answer any *two* questions.

#### Question 8

- (a) Explain the process of sex determination in honey bees. [4]
- (b) Define *complete linkage*. Give an example of a cross, showing complete linkage. [4]
- (c) Write a short note on Multiple Ovulation Embryo Transfer Technology. [2]

**Question 9**

- (a) Give an account of artificial chromosomes in transfer of genetic material. [4]
- (b) Mention *any four* methods involved in the treatment of cancer. [4]
- (c) What is *RNA interference*? Give *any one* application of RNA interference. [2]

**Question 10**

- (a) What is *Integrated Pest Management*? [4]
- (b) Explain the structure of a typical antibody molecule. [4]
- (c) Why are bio-fertilizers preferred over chemical fertilizers? [2]