

**BIOLOGY**

Time : 3 Hrs.

July - 2016

Marks : 70

**SECTION - I : Botany**

**Q.1. Select and write the most appropriate answer from the given alternatives (7) for each sub-question:**

- (1) Genotype of human blood group 'O' will be .....
- (a)  $I^A I^A$  (b)  $I^A I^B$  (c)  $i i$  (d)  $I^A i$
- (2) 'Cry' genes are present in.....
- (a) *Agrobacterium tumefaciens* (b) *Bacillus thuringiensis*  
(c) *Rhizobium species* (d) *Escherichia coli*
- (3) 'Tropane' is obtained from .....
- (a) *Daucus carota* (b) *Catharanthus roseus*  
(c) *Datura stramonium* (d) *Mentha piperata*
- (4) Which of the following vitamins is not fat soluble?
- (a) Vitamin A (b) Vitamin B (c) Vitamin D (d) Vitamin K
- (5) How many meiotic divisions are required to produce 200 seeds?
- (a) 50 (b) 100 (c) 200 (d) 250
- (6) Energy flow in ecosystem is .....
- (a) reverse (b) unidirectional  
(c) bidirectional (d) multidirectional
- (7) Endosperm of angiosperm is .....
- (a) haploid (b) diploid (c) triploid (d) tetraploid



**Q.2. (A) Answer in 'one' sentence only:** (6)

- (1) What is Bacteriophage?
- (2) What is emasculation?
- (3) What is VAM?
- (4) What is the role of decomposers in an ecosystem?
- (5) Name any two edible mushrooms.
- (6) What is ecological succession?

**(B) Sketch and label the 'Ultrastructure of Mitochondrion'.** (2)

**(C) Attempt any TWO of the following:** (4)

- (1) Give the floral adaptations for anemophily.
- (2) Name any two antibiotics with their microbial source.
- (3) Describe the formation of helobial endosperm.
- (4) Give the hazardous effects of agrochemicals.

**Q.3. (A) Attempt any TWO of the following:** (6)

- (1) Explain incomplete dominance with suitable example.
- (2) What are transgenic plants? Explain with any two examples.
- (3) Explain micropropagation and somatic hybridization.

**(B) Sketch and label stages in development of angiospermic female gametophyte from functional megaspore.** (3)

**Q.4. Give the central dogma of protein synthesis. Explain the process of translation.** (7)

OR

What is dark reaction in photosynthesis? Describe  $C_3$  Pathway.

**SECTION - II : Zoology**

**Q.5. Select and write the most appropriate answer from the given alternatives for each sub-question:** (7)

- (1) Vermiform appendix is an example of ..... organ.  
(a) vestigial (b) homologous (c) sense (d) analogous
- (2) In which of the following disorders number of chromosomes present is 47?  
(a) Turner's syndrome (b) Cushing's syndrome  
(c) Acquired Immuno-Deficiency Syndrome  
(d) Down's syndrome
- (3) Human blood clotting factor VIII is used to treat .....  
(a) pituitary dwarfism (b) diabetes mellitus  
(c) haemophiliacs (d) cystic fibrosis
- (4) A person suffering from diabetes insipidus shows .....  
(a) hyperglycemia (b) hypoglycemia  
(c) polyuria (d) hypertension
- (5) Photoreceptor cells are present in .....  
(a) blind spot (b) retina (c) cochlea (d) cornea
- (6) 'HAART' is suggested for the treatment of .....  
(a) malaria (b) cancer (c) AIDS (d) high cholesterol level
- (7) For DNA fingerprinting radioactive probe obtained from ..... is used in India.  
(a) Banded Krait (b) King Cobra (c) Viper (d) Rat snake



**Q.6. (A) Answer the following in 'one' sentence each:**

- (1) Give any two examples of commensalism.
- (2) What is the common name of *Apis mellifera*?
- (3) Which growth hormone is used to enhance dairy productivity?
- (4) Define Linkage.
- (5) Name of two classes to which *Archaeopteryx* acts as connecting link.
- (6) Define the term natality.

(6)

**(B) Sketch and label Malpighian body.**

(2)

**(C) Attempt any Two of the following:**

- (1) Enlist any four sequential evolutionary names of human ancestors.
- (2) Give the significance of transgenic animals for betterment of life.
- (3) Give the economic importance of lac.
- (4) Give the fate of mesoderm.

(4)

**Q.7. (A) Attempt any Two of the following:**

- (1) Explain the mechanism of sex determination in birds.
- (2) Give any two unique features of acquired immunity.
- (3) With the help of pyramid, describe the growing population.

(6)

**(B) Sketch and label reflex arc.**

(3)

**Q.8.** Explain the process of early cleavage till the formation of morula.

(7)

OR

Describe five types of leucocytes, with the help of diagrams. Add a note on their functions.

