

# **BOARD QUESTION PAPER: MARCH 2015 BIOLOGY**

Time: 3 Hours Total Marks: 70

#### Note:

- i. Answers to Section-I and Section-II should be written in **Two Separate** answer books.
- ii. Questions from Section-I attempted in the answer book of Section-II and vice-versa will not be assessed / not given any credit.
- iii. All questions are compulsory.
- iv. Draw neat and labelled diagram wherever necessary.
- v. Figures to the right indicate full marks.
- vi. Answer to every new question must begin on a new page.

SECTION – I [BOTANY]						
	i.					
		(A) test (B	·			
		(C) dihybrid (D	) monohybrid			
	ii.	Appearance of new combinations in F2 generation in a dihybrid cross proves the law of				
		(A) dominance (B)	) segregation			
		(C) independent assortment (D	,			
	iii.	A fine powder of recycled modified plastic is known as				
		(A) polyblend (B				
		(C) polyester (D				
	iv.	v. The partially decomposed organic matter is formed by a process called .				
		(A) fragmentation (B	· ·			
		(C) mineralization (D	) leaching			
	v.	Transfer of genetic material into a bacterial cell through a viral vector is known as .				
		(A) transformation (B				
		(C) transfection (D	translation			
	vi.	If the number of chromosomes in an endosperm cell is 27, what will be the chromosome number in the definitive nucleus?				
		(A) 9 (E	) 18			
		(C) 27 (D	9) 36			
	vii.	i. Lever mechanism of pollination is observed in .				
		(A) Salvia (B	) Jasmine			
		(C) Bougainvillea (D	Butea			
Q.2.	(A)	) Answer each question in 'One' sentence:				
Ç•	<ul> <li>(A) Answer each question in 'One' sentence:</li> <li>i. A pea plant pure for yellow seed colour is crossed with a pea plant pure for green seed colour.</li> </ul>					
		In F <sub>1</sub> generation, all pea plants were with yellow seed. Which law of Mendel is applicable?				
	ii.	Name the enzyme responsible for delay in ripening of tomato fruit.				
	iii	Which are the bacteria responsible for converting organic acids into methane?				

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	iv.	Name the high yielding semi-dwarf varieties of wheat selected and introduced in India 1963.	in			
	v. vi.	'Formation of primary endosperm nucleus is called triple fusion'. Give reason. Mention any 'two' ecological services for the benefit of mankind.				
	<b>(B)</b>	Sketch and label 'tubular tower fermenter'.	(2)			
	(C) i. ii. iii.	Answer the following (Any TWO): Global warming is caused by 'greenhouse effect'. Justify. With the help of a neat and labelled diagram explain VAM (vesicular arbuscu mycorrhizae). Distinguish between light and dark reactions.	( <b>4</b> ) lar			
	iv.	'Mendel selected the garden pea plants for his experiments'. Explain.				
Q.3.	(A) i. ii. iii.	Attempt the following (Any TWO): With the help of a neat and labelled diagram describe steps in recombinant DNA technology. What is 'tissue culture'? Describe the methodolgy of tissue culture.  Define vegetative propagation. Differentiate between 'stem tuber' and 'tuberous root'.	<b>(6)[9]</b> y.			
	<b>(B)</b>	Sketch and label T.S. of angiospermic anther.	(3)			
Q.4.	With	the help of a neat and labelled diagram describe Watson and Crick's model of DNA.	[7]			
	OR With the help of schematic representation explain Kreb's cycle.					
		SECTION – II				
		[ZOOLOGY]				
Q.5.		elect and write the most appropriate answer from the given alternatives for each sub-				
	ques i.	In gene therapy, DNase is used to treat  (A) cystic fibrosis (B) haemophilia  (C) pituitary dwarfism (D) insulin dependent diabetes	[7]			
	ii.	If only one 'X' chromosome is found in a female person, which of the following symptons she will show?  (A) epicanthal skin fold (B) webbing of neck (C) small testis and absence of spermatogenesis (D) presence of simian crease on the palm	ms			
	iii.	In which of the following haploid cells a whole genome in human being is present?  (A) sperm (B) somatic cell (C) mature RBC (D) primary spermatocyte				
	iv.	Which of the following is NOT an example of connecting link?  (A) Archaeopteryx  (B) Ichthyostegia  (C) Seymouria  (D) Biston betularia				
	v.	In, superior males of the one breed are mated with superior females of anoth breed.  (A) outcrossing (B) cross-breeding (C) outbreeding (D) inbreeding	ner			
	vi.	Normal activities of the heart are regulated by  (A) brain (B) spinal cord  (C) modified cardiac muscles (D) hormones				



- vii. During type of interaction, both organism are benefited.
  - (A) mutualism

(B) competition

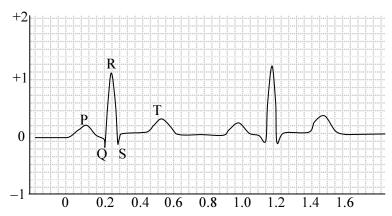
(C) commensalism

(D) parasitism

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

(6)[12]

- i. What is gene pool?
- ii. Give any 'two' names of X-linked diseases.
- iii. What does abbreviation HGP stand for?
- iv. Give 'two' varieties of silk which are considered as inferior quality.
- v. In the electrocardiogram shown below, which wave represents ventricular diastole.



- vi. Which method of conservation of biodiversity includes 'hot spot' method?
- (B) Sketch and label ventral view of human heart.

**(2)** 

(C) Attempt any TWO of the following:

(4)

- i. Distinguish between ape and man.
- ii. Give the applications of DNA fingerprinting technique.
- iii. Enlist the various types of cancer.
- iv. Give the significance of fertilization.

### Q.7. (A) Attempt any TWO of the following:

(6)[9]

- i. What will be phenotype of progeny, if a carrier haemophilic female marries a normal male? Explain.
- ii. With the help of a chart, explain the compatibility of human blood groups.
- iii. Justify the following sentences:
  - a. The conservation of endangered species of plants and animals is necessary.
  - b. Pollution Under Control (PUC) certificate is mandatory for all vehicles and industries.
  - B) Sketch and label 'structure of nephron'.

(3)

**Q.8.** With the help of a labelled diagram of lateral view of cerebrum, describe its structure and give any 'two' functions of cerebrum.

[7]

OR

With the help of a neat, labelled diagram, describe the human male reproductive system.