

## BOARD QUESTION PAPER : MARCH 2019 BIOLOGY

**Note:**

- i. All questions are compulsory.
- ii. Draw neat, labelled diagrams wherever necessary.
- iii. Question paper consists of **30** questions divided into **FOUR** sections namely **A, B, C** and **D**.
- iv. **Section A:** contains Q. No. **1** to **4** of **multiple choice** type of questions carrying **one mark** each and Q. No. **5** to **8** are **very short answer** type of questions carrying **one mark** each.
- v. **Section B:** contains Q. No. **9** to **18** of **short answer** type questions carrying **two marks** each. Internal choice is provided **only** to **one** question.
- vi. **Section C:** contains Q. No. **19** to **27** of **short answer** type of questions carrying **three marks** each. Internal choice is provided **only** to **one** question.
- vii. **Section D:** contains Q. No. **28** to **30** of **long answer** type of questions carrying **five marks** each. Internal choice is provided to **each** question.
- viii. For each **MCQ**, **correct answer** must be written along with its **alphabet**,  
**e.g., (a) ..... / (b) ..... / (c) ..... / (d) ..... etc.**
- ix. In case of **MCQs**, (i.e. Q. No. 1 to 4) evaluation would be done for the **first attempt** only.
- x. Start each section on a new page.
- xi. Figures to the right indicate full marks.

**SECTION A**

[8]

- Q.1** As the base sequence present on one strand of DNA decides the base sequence of other strand, this strand is considered as \_\_\_\_\_ (1)
- (A) Descending strand (B) Leading strand  
(C) Lagging strand (D) Complimentary strand
- Q.2** \_\_\_\_\_ shows haplo-diploid type of sex-determination. (1)
- (A) Pigeon (B) Honey bee  
(C) Parrot (D) Snake
- Q.3** Membrane bound receptors and hormones produce second messengers like \_\_\_\_\_. (1)
- (A) Renin (B) IP<sub>3</sub>  
(C) ANF (D) GHRF
- Q.4** During double fertilization second male gamete fuses with \_\_\_\_\_. (1)
- (A) antipodal cell (B) egg cell  
(C) secondary nucleus (D) synergids
- Q.5** What is Sinus arrhythmias? (1)
- Q.6** By which process ammonia is converted into urea in liver? (1)
- Q.7** Give the role of plasmids in bacterial cell. (1)
- Q.8** A person is showing symptoms like increased BMR, heart rate, pulse rate, blood pressure and deposition of fats in eye sockets. Name the disease he is suffering from. (1)



## SECTION B

[20]

- Q.9** Define apiculture. Name the products obtained from it. (2)
- Q.10** Define biofertilizers. Give two types of fungal biofertilizers. (2)
- Q.11** Give the types of blood proteins and human hormones produced by recombinant DNA-technique. (2)
- Q.12** Write any two scientific and commercial values of transgenic animals in favour of human being. (2)
- Q.13** Define 'Respiratory Quotient' (RQ) and calculate the Respiratory Quotient for Carbohydrate. (2)
- Q.14** Light and dark reactions are interdependent – Explain. (2)
- Q.15** Classify the chromosomes on the basis of position of centromere. (2)
- Q.16** Sketch and label structure of male gametophyte in angiosperm. (2)
- Q.17** Match the following and rewrite: (2)

Group 'A'		Group 'B'	
i.	Diethyle Carbamacine	a.	AIDS
ii.	Widal test	b.	Pneumonia
iii.	Albendazole	c.	Filariasis
iv.	HAART	d.	Typhoid
		e.	Ascariasis

- Q.18** Complete the following chart and rewrite: (2)

	Agencies	Type of Pollination
i.	Water	.....
ii.	.....	Entomophily
iii.	Bat	.....
iv.	.....	Ornithophily

**OR**

- Explain outbreeding devices in angiospermic plants. (2)

## SECTION C

[27]

- Q.19** What is Biofortification? Explain selective breeding with suitable example. (3)
- Q.20** In the light of Griffith's experiment, explain the action of two strains of *Diplococcus pneumoniae* and give his conclusion. (3)
- Q.21** Give scientific reasons: (3)
- (A) The pyramid of energy is always upright.
- (B) In an ecosystem the energy flow is always unidirectional.
- (C) Ozone present in the stratosphere is called as "good ozone".
- Q.22** Define 'reproductive isolation' and explain two types of reproductive isolation. (3)
- Q.23** Name the connecting link between glycolysis and TCA cycle and explain it. (3)
- Q.24** Explain internal structure of kidney with the help of suitable diagram. (3)



**Q.25** Explain the mechanism of reflex action with the help of a suitable diagram. (3)

**Q.26** Define pollution. “Industries are pouring poison in water”– Explain. (3)

**Q.27** With the help of a suitable diagram, describe ultra structure of the cell organelle, which is essential for photosynthesis. (3)

**OR**

**Q.27** During photosynthesis “O<sub>2</sub> is evolved from water molecule and not from CO<sub>2</sub>”. Give the experimental proof given by Robert Hill.

**SECTION D**

**[15]**

**Q.28** Explain with help of a suitable diagram conducting system of human heart. (5)

**OR**

Give reasons:

- (A) Lymphatic vessels are milky in appearance.
- (B) Monocytes are called scavengers.
- (C) The wall of left ventricle is thicker than right ventricle.
- (D) Valves are present in the veins.
- (E) Pulmonary veins carry oxygenated blood.

**Q.29** Which phenomenon gives 2:1 ratio instead of 3:1 ratio? Describe with graphical representation. (5)

**OR**

A pea plant homozygous for yellow round seed is crossed with its recessive parents. Calculate the phenotypic and genotypic ratio with the help of checker board.

**Q.30** After puberty human female shows cyclic changes in her reproductive system. Explain structural and hormonal changes in the uterus. (5)

**OR**

Give reasons:

- (A) Scrotal sac serves as thermoregulator.
- (B) Corpus luteum gets converted into corpus albicans in absence of fertilization.
- (C) Missing of menses is the first indication of pregnancy.
- (D) Surgical sterilization is a permanent method of birth control.
- (E) Human egg is microlecithal.