

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) IP₃
(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 “O₂ is evolved from water molecule and not from CO₂”. 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.