

## BIOLOGY (Theory)

[Time allowed: 3 hours]

[Maximum marks: 70]

### General Instructions:

- (i) All questions are compulsory.
- (ii) This question paper consists of four sections A, B, C and D. Section A contains 8 questions of one mark each, Section B is of 10 questions of two marks each, Section C is of 9 questions, of three marks each and Section D is of 3 questions of five marks each.
- (iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.
- (iv) Wherever necessary, the diagrams drawn should be neat and properly labelled.

**Q1.** Mention the difference between spermiogenesis and spermiation. (1)

**Ans:** Difference between spermiogenesis and spermiation

**Spermiogenesis:** It is the process of transforming spermatids into matured spermatozoa or sperms.

**Spermiation:** It is the process when mature spermatozoa are released from the Sertoli cells into the lumen of seminiferous tubules

**Q2.** A garden pea plant (A) produced inflated yellow pod, and another plant (B) of the same species produced constricted green pods. Identify the dominant traits. (1)

**Ans:** The trait to produce inflated yellow seeds is dominant over the trait producing constricted green seeds.

**Q3.** What is an interaction called when an orchid grows on a mango plant?

**Ans:** An orchid growing on the branch of a mango tree is an epiphyte. Epiphytes are plants growing on other plants which however, do not derive nutrition from them. Therefore, the relationship between a mango tree and an orchid is an example of commensalism.

**Q4.** Write the names of the semi-dwarf and high yielding rice varieties developed in India after 1966.

**Ans:** Jaya and Ratna are two semi-dwarf and high yielding rice varieties developed in India after 1966.

**Q5.** Write what do phytophagous insects feed on. (1)

**Ans:** As the name suggests, phytophagous insects feed on plants.

**Q6.** Mention the unique feature with respect to flowering and fruiting in bamboo species. Write the (1)

**Ans:** Bamboo species flowers only once in their life time, generally after 50-100 years, produce large number of fruits and then die.

**Q7.** How does smoking tobacco in human lead to oxygen deficiency in their body? (1)

**Ans:** Smoking increases carbon monoxide (CO) content in blood and reduces the concentration of haem-bound oxygen. This causes oxygen deficiency in the body.

**Q8.** State the significance of biochemical similarities among diverse organisms in evolution? (1)

**Ans:** Biochemicals are molecules such as DNA, RNA, amino acids, etc. found in the body of living organisms. Similarities in biochemicals such as DNA, help in deriving the line of evolution. Organisms with more similar DNA sequences are considered close relatives or have evolved from the same ancestor.