

B.Sc.-M.Sc. Integrated Program
Semester-I Examination, 2021
Paper Title: Basics of Physics and Biology
Paper Code: BCH-GE1-01-A-TH
Section: Biology

Time: 90min

Max Marks: 37

Attempt all questions. Use only A4 sheets. All parts of a question must be attempted in continuation. Start answer of a fresh question on a new page. Cite examples and draw labelled diagrams wherever necessary.

Question 1 State whether the statement true or False

14 X 0.5=7

1. Genotype is based on phenotype.
2. Six gametes will be produced for the RrYy allele arrangement.
3. Chromosome is the physical basis of inheritance while DNA is the chemical basis of inheritance.
4. Polyploidy facilitates gene exchange between distantly related species.
5. Translocations involve non-homologous chromosomes, whereas crossing over involves non-sister chromatids of homologous chromosomes.
6. Low CO₂ Concentration promotes stomatal opening
7. Plants transpire more rapidly in the dark than in the Light
8. The phenomenon of synthesis of ATP in light reactions of photosynthesis is called photophosphorylation
9. Every living cell has a cell wall.
10. Macromolecules are large molecules composed of thousands of non-covalently connected atoms.
11. A centriole comprises nine bundles of microfilaments that are hollow tubes arranged in a ring.
12. Blood clotting by platelets, WBCs and other type of proteins like antibodies protect our body from any kind of foreign invasion.
13. Net filtration pressure is more than glomerular blood hydrostatic pressure to drive glomerular filtration.
14. Enterohepatic circulation is a recycling process dietary fats.

Question 2

Attempt ANY THREE

3 X 5=15

- A. What is the basis of classification of plants? Name the major taxa and their distinguishing features.
- B. Draw neat and well labeled electron microscopic structure of a typical plant cell.
- C. Explain Watson and Crick model of DNA double helix.
- D. What is the significance of mitosis and meiosis?
- E. Explain briefly the different chemical constituents of living cells.

Question 3

Attempt ANY THREE

3 X 5=15

- A. Justify: Coat color in mice is under the control of Supplementary genes
- B. Differentiate between Incomplete dominance and Co dominance. Give suitable example.
- C. Give an account of Blood Clotting Cascade. What is platelets plug formation?
- D. Discuss the events in spermatogenesis. Draw a well labeled diagram of sperm?
- E. Differentiate between light and dark reactions?
