

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

Time: 45min

Max Marks: 18

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.

Q1. State whether the statement is True or False

13 X 1= 13.0

- i. Calvin cycle uses ATP and NADPH from light reactions to produce sugars
- ii. Light reaction is also called Hill Man reaction
- iii. Photorespiration involves PEP carboxylase enzyme for capturing carbon dioxide.
- iv. Flowers that have only one male or one female reproductive organs are called perfect flower
- v. Biotic pollination is pollination by animal.
- vi. Cleistogamous flowers are those flowers in which pollination occurs before flowers open.
- vii. A disaccharide is formed when a dehydration reaction joins two monosaccharides
- viii. Saturated fatty acids have the minimum number of hydrogen atoms possible and no double bonds
- ix. Mitochondria converts chemical energy from food into energy that can be used by the cell.
- x. Crossing over occurs during prophase of mitosis.
- xi. The sympathetic nervous system activates the fight or flight response during a threat or perceived danger.
- xii. Progesterone and estrogens are produced by ovaries.
- xiii. The lymphatic system contains immune cells called lymphocytes and lymph nodes are sites of both microbial destruction and the production of antibodies against other foreign invaders.

Q 2 Fill in the blanks

10X0.5= 5.0

- i. DNA strand connecting two nucleosomes is called -----.
- ii. Polytene chromosomes are also called -----.
- iii. In humans ----- are known to produce a number of malfunctions, e.g. *cri-du-chat*.
- iv. ----- is known as the Father of Genetics.
- v. In ----- inheritance there is no cumulative action in the presence of two dominant genes.
- vi. The inheritance of fruit shape in *Cucurbita pepo* is under the effect of -----.
- vii. ----- is between Homozygous recessive x Hybrid.
- viii. The first-generation offspring in a breeding experiment is known as -----.
- ix. More than two alternate forms of a gene that occur at the same gene locus and express the different phenotypes of the same trait are called -----.
- x. A phenotypically normal man who has a brother with M.D. marries a homozygous normal woman. There will be ----- probability that any of their children will have M.D.
