

## SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2016

(UG—CCSS)

Core Course—Botany

BO 6B 10—CELL BIOLOGY, GENETICS AND PLANT BREEDING

(2012 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

*Illustrate wherever necessary.***Part A***Answer all questions.*

Choose the correct answer :

1 Terminal electron transport chain is located in \_\_\_\_\_

- (a) Golgi complex. \_\_\_\_\_ (c) Mitochondrion.  
 (b) chloroplast. \_\_\_\_\_ (d) glyoxisome.

2 tRNA act as an adaptor between \_\_\_\_\_ and amino acid.

- (a) mRNA. (b) DNA.  
 (c) rRNA. (d) Polypeptide.

3 1 : 2 : 1 is the typical Mendelian \_\_\_\_\_ genotypic ratio.

- (a) Monohybrid. (b) Dihybrid.  
 (c) Test cross. (d) Back cross.

4 \_\_\_\_\_ is a high yielding green chilly variety widely cultivated in Kerala.

- (a) Uma. (b) Kiran.  
 (c) Arka anamika. (d) Ujwala.

Fill in the blanks :

5 Cristae are infoldings in the inner membrane of \_\_\_\_\_

6 \_\_\_\_\_ is a type of cell division taking place in the germline cells during gamete production.

7 \_\_\_\_\_ is an enzyme which uses an RNA template for the synthesis of a complementary DNA strand.

8 Exons are the \_\_\_\_\_ sequences found in eukaryotic split genes.

Answer in *one* word :

- 9 Name the basic repeating units of chromatin consisting of a core of eight histone proteins and DNA wrapped around the core.
- 10 Name a selection procedure which is mainly practiced in vegetatively propagated crop plants.
- 11 Name the cross between an F 1 individual and the recessive parent.
- 12 Which term is used to denote the ends of the chromosomes.

(12 x  $\frac{1}{4}$  = 3 Weightage)

### Part B

*Short answer type questions.*

Answer **all** questions.

- 13 What is 5' cap ?
- 14 State the major objective of quarantine regulations.
- 15 What are alleles ?
- 16 Define apomixis.
- 17 Which cell organelle is popularly called as the suicide bag of the cell ?
- 18 Define aneuploidy.
- 19 What is acclimatization.
- 20 Give one example of multiple **allelism**.
- 21 State Mendel's law of independent assortment.

(9 x 1 = 9 weightage)

### Part C

*Paragraph questions.*

Answer any **five** questions.

- 22 Define epistasis. Explain how it differs from dominant recessive relationship.
- 23 List out the major enzymes involved in DNA replication.
- 24 What are anticodons ? Mention its importance in translation.
- 25 State the importance of emasculation.
- 26 Compare the **ribosomes** of prokaryotic and eukaryotic cells.
- 27 Explain the steps of pureline selection.
- 28 With the help of an example explain the **operon** concept of gene regulation in bacteria.

(5 x 2 = 10 weightage)

## Part D

*Essay questions.*

*Answer any two questions.*

29 With the help of sketches explain the various steps of mitosis.

30 Citing an example explain sex linked inheritance.

31 Elucidate the experiment which proved that DNA replication is semi-conservative.

(2 x 4 = 8 weightage)