

**DEPARTMENT OF SCHOOL EDUCATION
CHENGALPATTU DISTRICT
SECOND ASSESSMENT TEST – JANUARY 2022.**

CLASS: XII**BOTANY****Max.marks : 70****Time: 3 Hours****PART – I****CHOOSE THE CORRECT ANSWER AND WRITE WITH OPTION CODE:****15X1=15**

1. Spliceosomes are not found in the cells
 - a. Plants
 - b. Fungi
 - c. Animals
 - d. Bacteria
2. Find the wrong statement.
 - a. *Arabidopsis thaliana* is the first flowering plant, where its entire genome is sequenced.
 - b. McClintock experiment is genomes are not static but are highly plastic entities.
 - c. An example for Insertion or Deletion editing seen in Mitochondria and chloroplast RNA in plants.
 - d. Multiple protein isoforms are formed.
3. Termination codon is
 - a. UAA
 - b. UAG
 - c. both a and b
 - d. neither a and b
4. Which one of the following hydrolysis internal phosphodiester bonds in a polynucleotide chain?
 - a. Lipase
 - b. Exonuclease
 - c. Endonuclease
 - d. Protease
5. The concept of gene mapping was first developed by
 - a. T.H.Morgan
 - b. Alfred h Sturtevant
 - c. C.B.Bridges
 - d. Muller
6. In Mendel's experiments with garden pea, round seed shape(RR) was dominant over wrinkled seeds (rr), yellow cotyledon (YY) was dominant over green cotyledon (yy). What are the expected phenotypes in the F₂ generation of the cross RRYy x rryy?
 - a. Only round seeds with green cotyledons
 - b. Only wrinkled seeds with yellow cotyledons
 - c. Only wrinkled seeds with green cotyledons
 - d. Round seeds with yellow cotyledon wrinkled seeds with yellowcotyledons
7. Lethal Gene reported plant
 - a. Summer squash
 - b. *Mirabilis jalapa*
 - c. *Antirrhinum*
 - d. *Pisumsativum*
8. A scientist who rediscovered Mendel's experiment
 - a. H.Nilsson
 - b. E. Baur
 - c. Erich von Tshermak
 - d. Ehle
9. Match the following:

1. Green	-	(i) Winkled	
2. Round	-	(ii) Dwarf	
3. Axial	-	(iii) Terminal	
4. Tall	-	(iv) Yellow	
a. 1(i), 2(iv), 3(iii), 4(ii)		b. 1(ii), 2(iii), 3(iv), 4(i)	c. 1(iii), 2(i), 3(iv), 4(ii)
			d. 1(iv), 2(i), 3(iii), 4(ii)
10. F₂ Phenotypic ratio of Supplementary genes
 - a. 12:3:1
 - b. 9:3:4
 - c. 9:6:1
 - d. 13:3
11. Coleorhiza is found in
 - a. Paddy
 - b. Bean
 - c. Pea
 - d. *Tridax*
12. Find out the **Wrong** Pair
 - a. Protandry - *Clerodendrum*
 - b. Self-sterility - *Lythrum*
 - c. Protogyny - *Aristolochiabracteata*
 - d. Homogamy - *Mirabilis jalapa*
13. Choose the Correct statement.
 - a. Ornithophilous flowers have tough, leathery and scented.
 - b. Cheiropterophilous flowers are producing enormous odour and open during day time.
 - c. Meiosis and syngamy does not take place in Apomixis
 - d. The irregular surface of the seed coat makes endosperm ruminant in *Myristica*.
14. Pollen tube was discovered by
 - a. J.G.Kolreuter
 - b. G.B.Amici
 - c. E.Strasburger
 - d. E.Hanning

15. An Example for Vegetative reproduction by root
 a. *Dahlia* b. *Chrysanthemum* c. *Agave* d. *Begonia*

PART II

II. ANSWER ANY SIX OF THE FOLLOWING (Q.NO24 IS COMPULSORY):

6 X 2 = 12

16. What is Polyembryony? Write the Practical applications.
 17. Write the significances of transposons.
 18. What is TATA box?
 19. Give Mendel's Law of Independent Assortment?
 20. Give Examples for Codominance.
 21. Differentiate between Homozygous and Heterozygous
 22. Write short notes on Pollenkitt.
 23. What is Gynostegium?
 24. What is Gene mapping? Write its uses.

PART III

ANSWER ANY SIX OF THE FOLLOWING (Q. NO.33 IS COMPULSORY):

6 X 3 = 18

25. What is Parthenocarpy? Write the Significances of Parthenocarpy.
 26. Differentiate continuous variation with discontinuous variation.
 27. Write the significances of RNA editing.
 28. Explain the experiment that proven DNA replication by semiconservative method.
 Name the Plant used for this experiment.
 29. Write the characteristics of multiple alleles.
 30. Explain Incomplete dominance experiment.
 31. What is back cross? Write short notes.
 32. Write the functions of Endosperm. Write the types of Endosperm.
 33. Draw and label the diagram of T.S of mature anther.

PART IV

ANSWER ALL THE QUESTIONS:

5 X 5 = 25

34. a). What attributes make Arabidopsis a suitable model plant for molecular genetic research?
 (Or)
 b). Explain the mechanism of Crossing Over.
35. a). Describe – Dominant Epistasis.
 (Or)
 b). How does the wrinkled gene make Mendel's peas wrinkled? Find out the molecular explanation.
36. a). Explain the structure of the seed ' *Oryza*'
 (Or)
 b). Explain the types of Ovules.
37. a). Describe the pollination in *Salvia*
 (Or)
 b). Explain vegetative reproduction with examples.
38. a). Describe Dihybrid cross of Mendel's experiment.
 (Or)
 b). Explain self-sterility in *Nicotiana*.
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