VCD/ 28/10/23 BOTANY – II SEMESTER III MARKS-100 DURATION - 3 HRS

Note the below:

1. **All the questions are compulsory.**
2. **Draw neat & suitable diagrams wherever necessary.**
3. **Figures to the right indicate full marks.**

Q 1. A. Choose the correct option & rewrite the statements: **(10 Marks)**

1. The process of DNA replication is affected by an enzyme known as _____.
   a. Mutase b. Ligase c. Polymerase I d. Ribonuclease
2. Formation of cell plates starts at _____.
   a.G2 phase b.prophase c.telophase d.S phase
3. _____ enzymes are used to detoxify alcohol.
   a.Catalase b.Peroxidase c.Urea – catalase d.Amylase
4. Oxysomes of F0-F1 particles take place on _____.
   a.Chloroplast surface b.Thylakoid c. Inner mitochondrial membrane d.Inner mitochondrial membrane
5. _____ is a chromosomal aberration in which a piece or a part of chromosome is transferred to a non homologous chromosome.
   a. deletion b. duplication c. Inversion d. translocation
6. If the ratio between X-chromosomes and autosome genome is equal to 1 than the drosophila fly is _____ according to genic balance theory.
   a. Intersex b. super female c. female d. male
7. _____ mechanism of sex determination is found in butterflies
   a. XX-XY b. XX- XO c. ZZ- ZW d. ZZ- ZO
8. The fragments of DNA are joined together by which of the following enzymes?
   a. Endonuclease b. DNA polymerase c. Primase d. Ligase
9. The 3' to 5' strand of DNA from which RNA is transcribed is known as _____
   a. template strand b. sense strand c. anti-template strand d. coding strand
10. Transcription is catalyzed by enzymes _____ in both prokaryotes and eukaryotes.
    a. Amylase b. Maltase c. RNA polymerase d. Lipases

Q 1. B Answer the following in one sentence **(10 Marks)**

a. Where is DNA present in the eukaryotic cells?
b. Who discovered ribosomes for the first time?
c. Enlist the structural chromosomal aberrations.
d. What are monoecious plants? Give two examples of it
e. What is Replication?

Q 2. Answer the following questions (Any two) **(20 Marks)**

1. What are Ribosomes? Explain their structure, function and Origin.
2. How long is the process of interphase?

3. What is DNA? Explain different types of DNA.
4. Describe the structure and function of Peroxisomes.

Q 3. Answer the following questions (Any two) **(20 Marks)**

1. Describe types of Deletions and Duplications.
2. Describe with example and suitable crosses a. XX-XY and XX-XO system of sex determination.
3. Colorblindness is a X-linked recessive trait, calculate the percentage of affected children of following crosses
   a. Colorblind male X Normal Female
   b. Normal male X Carrier Female
4. With reference to Haemophilia, carry out the following crosses to compute the percentage of progenies affected with the disorder and percentage of progenies not affected.
   a. Haemophilia male and Normal female
   b. Haemophilia male and Carrier female

Q 4. Answer the following questions (Any two) **(20 Marks)**

1. Discuss experimental evidence which proved DNA replication is semiconservative.
2. Enlist the various enzymes in DNA replication and describe their role in the process of replication.
3. Explain mechanism of RNA synthesis
4. Describe transcription mechanism in Eukaryotes.

Q 5. Short Notes (Any four) **(20 Marks)**

1. Pachytene
2. tRNA
3. ZZ- ZW mechanism of sex determination.
4. Inversion and its types.
5. Models of DNA replication.
6. Reformation of DNA helix

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