University of Salahaddin-Hawler
College of Agriculture
Field Crops Dept.

Plant biotechnology /theory

Final Examination, first semester)

Q1/ Fill the blanks with suitable phrases. (20 Marks)

1. Proteins are the links between ---------- and----------.
2. Bacterial restriction enzymes cut DNA molecules at specific DNA sequences called ----------.
3. During DNA replication cells use short stretches of complementary RNA-synthesized by enzymes called----------to initiate polymerization.
4. Physical methods to transfer DNA are ---------- and ----------.
5. The gap between two RNA primers is called----------.
6. Each synthesis cycle in PCR composed of three steps----------, ---------- and----------.

Q2/. Briefly answer the fallowing questions. (30 Marks)

1. Mutation breeding.
2. Biological significances in DNA replication.
3. Requirements of the vectors.
4. The aim of producing transgenic plants.
5. Create the transcribed RNA strand for the DNA below and mention the direction of the strand.

   5' 3'

   ATGCCGTTAGACCGTTAGCGGACCTG

Q3/ (25 Marks)

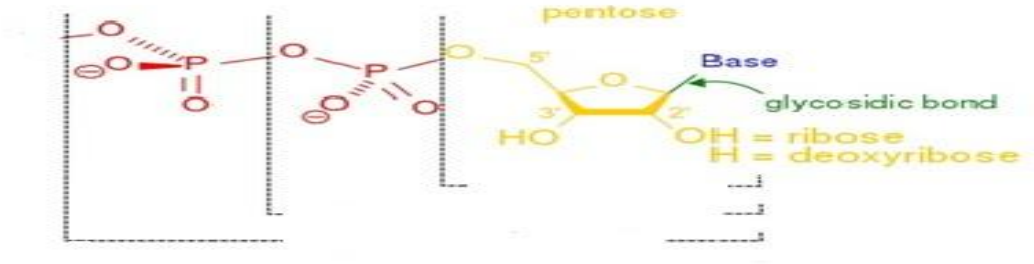
a) Explain the steps which involve the Agrobacterium-mediated transformation process.

b) Why it is important to ensure successful PCR conditions of the reactions and technique should be optimized?

Q4/ Define the following terms (25 Marks)

1.DNA cloning 2. Exon 3.Biotechnology 4. PCR 5. Replication Fork

Q5/ Fill the blanks with suitable phrases.

7. *The gap between two RNA primers is called----------.*
8. *Two major areas of plant biotechnology are---------- and ----------.*
9. 

10. *What are models possible in DNA replication ----------.----------and ----------.*
11. *Proteins are the links between ---------- and ----------.*

Q6/. Briefly answer the fallowing questions.

6. *Mutation breeding.*
7. *Extreme accuracy of DNA replication is necessary.*
8. *Total mechanism requires a cycle of repeating steps in DNA replication.*
9. *The role of RNA in protein synthesis.*

Q7/ prove by an experiment DNA is genetic material.

Lecturer
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