

Course No: BIPH 3225  
Course Title: الهندسة الوراثية  
Date: 15/3/2018  
No. of Questions: (4)  
Time: 1hours  
Using Calculator (No)

University of Palestine



1<sup>st</sup> Exam for 2<sup>nd</sup> Sem.  
2017/2018  
Total Grade:

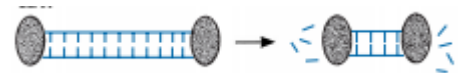
Instructor Name: أ.روان المدهون  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: \_\_\_\_\_  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

### Question One:

Choose the correct answer from the followings:

( 15 marks)

- A nuclease that removes the nucleotides from the ends of DNA molecules called
  - Endonuclease
  - Exonuclease
  - Nuclease
  - Restriction Endonuclease
- All the enzymes recognize particular DNA sequences, but the only endonucleases that cut within those recognition sequences are
  - Endonuclease V
  - Endonuclease III
  - Endonuclease I
  - Endonuclease II
- This photo describe the activity of
  - Nuclease Bal 31
  - Exonuclease III
  - DNase I
  - Nuclease S1
- All of these are true about RNase
  - used to get rid of unwanted RNA
  - Easy to inactivate
  - can be secreted in sweat
  - consider a type of nucleases
- Terminal transferase (terminal deoxynucleotidyl transferase)
  - repeatedly adds nucleotides to any available 3'terminus.
  - repeatedly adds nucleotides to any available 5'terminus.
  - add hetropolymer tails to DNA molecules
  - None of them
- a RNA-dependent DNA polymerase indicate
  - DNA Template
  - RNA template
  - RNA Polymerase
  - Used in Transcription
- The function of proofreading in DNA polymerase I performed by
  - 5'-3' polymerase
  - 3'-5' exonuclease
  - 5'-3' exonuclease
  - All of them



Course No: BIPH 3225  
Course Title: الهندسة الوراثية  
Date: 15/3/2018  
No. of Questions: (4)  
Time: 1hours  
Using Calculator (No)

University of Palestine



1<sup>st</sup> Exam for 2<sup>nd</sup> Sem.  
2017/2018  
Total Grade:

Instructor Name: أ.روان المدهون  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: \_\_\_\_\_  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

8. Many bacterial species have a natural ability to take up exogenous DNA molecules, this ability called
- a) Compatibility
  - b) Competence
  - c) Conjugation
  - d) All of them
9. the plant pathogen that used to insert DNA into plant cells is
- a) *Thermus Aquaticus*
  - b) *Saccharomyces Cerevisiae*
  - c) *Agrobacterium tumeficiens*
  - d) *Chlamydomonas reinhardtii*
10. Transformation method in which a very fine needle is used to inject the DNA directly into the nucleus.
- a) Biolistic transformations
  - b) Microinjection
  - c) Co-precipitation
  - d) Electroporation
11. All of the followings are true about Ideal Host Cell except
- a) Easy to handle and propagate
  - b) Have a long life-span
  - c) Available as a wide variety of genetically defined strains
  - d) Accept a range of vectors.
12. According to the plasmid classification Ti-plasmid consider
- a) Fertility Plasmid
  - b) Virulence Plasmid
  - c) Resistance Plasmid
  - d) Col plasmid
13. All of the followings are true about polylinker region except
- a) It's also known as Multiple Cloning Site
  - b) Its Increase the flexibility of vectors
  - c) Present in pAT153 but not in pRB322
  - d) It's the site where the recombinant DNA will be inserted
14. M13 phage
- a) Enter lytic cycle after infection
  - b) Has a capsid that enclose the double stranded DNA
  - c) Slow the growth and division of infected bacteria
  - d) Contain six essential closely packed genes
15. Construction of an M13 cloning vector involve
- a) Introduce the *lacZ'* gene into the intergenic sequence.
  - b) Create an *EcoRI* site by in vitro mutagenesis of hexanucleotide sequence
  - c) Introduce additional restriction sites into the *lacZ'* gene
  - d) All of them are true

Course No: BIPH 3225  
Course Title: الهندسة الوراثية  
Date: 15/3/2018  
No. of Questions: (4)  
Time: 1hours  
Using Calculator (No)

University of Palestine



1<sup>st</sup> Exam for 2<sup>nd</sup> Sem.  
2017/2018  
Total Grade:

Instructor Name: أروان المدهون  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: \_\_\_\_\_  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

**Question Two:**

**Describe the replication and packaging process in M13 bacteriophage 3 marks**

.....  
.....  
.....  
.....  
.....  
.....

**Question Three :**

**Compare between the followings: 5 marks**

**a) Phosphatase and Kinase**

.....  
.....

**b) DNase I and Nuclease SI**

.....  
.....

**c) T4 DNA ligase and E. coli ligase**

.....  
.....

**d) Integrative and non-integrative plasmid**

.....  
.....

**e) Insertion vector and Replacement vector**

.....  
.....

Course No: BIPH 3225  
Course Title: الهندسة الوراثية  
Date: 15/3/2018  
No. of Questions: (4)  
Time: 1hours  
Using Calculator (No)

University of Palestine



1<sup>st</sup> Exam for 2<sup>nd</sup> Sem.  
2017/2018  
Total Grade:

Instructor Name: أ.روان المدهون  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: \_\_\_\_\_  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

### Question Four:

Complete the following

12 mark

1. Transformation define as .....
2. Bacteria protect their own DNA from Restriction endonucleases by .....
3. The Natural functions of DNA ligases in cells are
  - a) .....
  - b) .....
4. Describe how chemical treatment with  $\text{CaCl}_2$  and heat shock can improve the efficiency of bacterial uptake of DNA  
.....  
.....
5. Explain the principle of DNA-containing liposome transformation  
.....  
.....
6. Mention the Essential Features that the vector must have  
.....  
.....  
.....
7. pAT153 is a deletion derivative of pBR322, what the additional new features that added to pAT153  
.....  
.....
8. the selection method in which the inserted DNA interrupts the coding sequence of the resistance gene and so alters the phenotype of the cell carrying the recombinant called .....

End of Questions  
*Good Luck*