

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
B.Sc., Winter 2017-18 Examination

Semester: 3

Date: 23/12/2017

Subject Code: 11102204

Time: 10:30 am to 1:00 pm

Subject Name: Molecular Biology-I

Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Describe Watson and Crick Model of DNA. Differentiate between A and Z forms of DNA. (08)

Q.1. B) Answer the following questions (Any two)

- (a) Brief note (04)
1. siRNA
 2. rRNA
- (b) Describe Chargaff's Rules of Complimentarity of DNA. (04)
- (c) Enlist enzymes present at the replication fork with their functions. (04)

Q.2. A) Answer the following questions.

- (a) Fill in the blanks. (04)
1. The control elements that repress the gene expression are called.....whereas the ones which promote the expression are called.....
 2.is the exception to central dogma of life and require.....enzyme to convert RNA to DNA.
- (b) Differentiate between Conjugation and Transformation (04)

Q.2. B) Answer the following questions (Any two)

- (a) Multiple choice questions. (03)
1. Protein as genetic material is found in

(A) Retroviruses	(B) Prions
(C) Picornavirus	(D) Tobacco Mosaic Virus
 2. Who proved presence of RNA as genetic material

(A) Frankal and Conrat	(B) Singer and Nicholson
(C) Harshey and Chase	(D) Messelson and Stahl
 3. The restriction stage of Cell Cycle where cell enter Quiescence with reduced Protein Synthesis and no growth is:

(A)G1	(B)S
(C) Go	(D) G2
- (b) What is meant by Semiconservative mode of replication. Explain? (03)
- (c) Differentiate between rolling circle and theta mode of replication (03)

Q.3. A) Describe Harshey and Chase Blender Experiment to prove DNA as genetic material? (08)

Q.3. B) Answer the following questions (Any two)

- (a) Brief note. (04)
1. Informosome
 2. hn RNA
- (b) Describe prokaryotic transcription. (04)
- (c) Compare and contrast DNA v/s RNA Synthesis (04)

Q.4. A) Answer the following questions.

- (a) Fill in the blanks. (04)
1. The first sheep to be cloned was named asdone by the scientist

2. The enzyme that opens up the DNA helix in Replication fork is.....and the proteins that protect the ssDNA exposed during replication are called as.....

(b) Differentiate between nucleoside and nucleotide. **(04)**

Q.4. B) Answer the following questions (Any two)

(a) Multiple choice questions. **(03)**

1. In Griffith's experiment, the mice used to die when

(A) Smooth strain infects (B) When mixture of heat killed smooth and rough strain infects

(C) Both of the above (D) Rough strain infects

2. The acceptor arm in tRNA where incoming amino acid attaches is:

(A) D Loop (B) ACC tail
(C) T ψ C arm (C) Anticodon Arm

3. 80 S eukaryotic ribosome consists of:

(A) 50S + 30S subunits (B) 60S + 40S subunits
(C) 40S + 40S subunits (D) None of the above

(b) Distinguish between Rho dependent and Rho independent transcriptional termination. **(03)**

(c) Explain Clover Leaf structure of tRNA. **(03)**