



**NAVVRACHANA
UNIVERSITY**

a UGC recognized University

School: School of Science
Program/s: BSc Life Science
Year: 3rd **Semester:** 5th
Examination: End Semester Examination
Examination year: December - 2021

Course Code: LS304

Course Name: Molecular Biology and Microbial Genetics

Date: 02/12/2021

Total Marks: 40

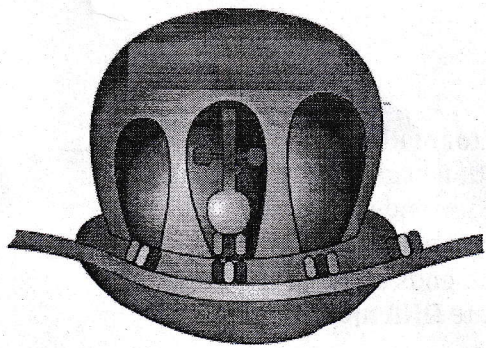
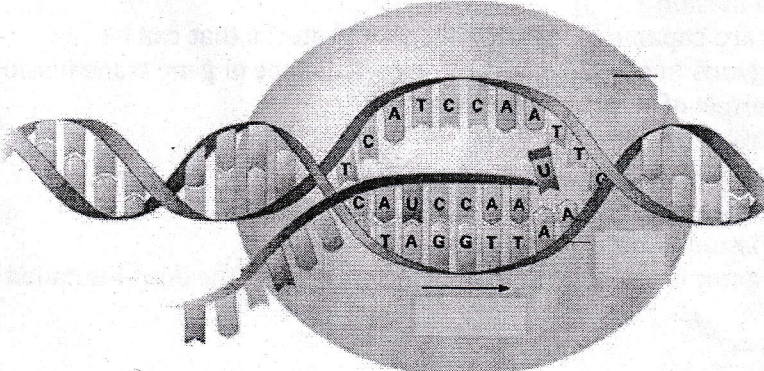
Time: 11:30 am to 01:30 Pm

Total Pages: 2

Instructions:

- All questions are compulsory
- Draw diagram wherever required.
- *COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No	Details	Marks	COs	BTL#
Q. 1	<p>A) Choose the correct options (5)</p> <p>1. Which is the largest among the followings?</p> <ol style="list-style-type: none"> Nucleotide Nitrogenous base Phosphate Carbon <p>2. The function of the sigma factor of RNA polymerase is to _____</p> <ol style="list-style-type: none"> assure that transcription begins at the proper point assure that transcription ends at the proper point assure that translation begins at the proper point assure that translation ends at the proper point <p>3. A cesium chloride will separate DNA molecules by</p> <ol style="list-style-type: none"> Absorption Resorption Density adhesion <p>4. Bacteria are capable of "sharing" genetic material that can be advantageous in certain environments. This type of gene transmission is an example of which of the following?</p> <ol style="list-style-type: none"> Transformation Transduction Conjugation Fission <p>5. If the F factor is attached to the bacterial genome, the donor is called as</p> <ol style="list-style-type: none"> F+ F++ F- Hfr <p>B) State the following statement is true or false and provide justification for both the cases (5)</p>	10	CO1 , CO2 , CO3 , CO4	BT1, BT2, BT3

	<ol style="list-style-type: none"> 1. The complex of RNA polymerase, DNA template and new RNA transcript is called translation bubble. 2. The Shine-Dalgarno sequence is the reading frame of a gene. 3. DNA is present in nucleus, mitochondria and chloroplast. 4. Pilli are responsible for making contact between cells; but transfer of plasmid doesn't occur through pilli. 5. DNA binding during transformation is reversible. 			
Q. 2	<p>Answer the questions in brief (2*5=10)</p> <ol style="list-style-type: none"> 1. What is bidirectional replication? 2. Describe the structure of prokaryotic RNA polymerase 3. Define genetic code 4. Define competence. 5. Enlist the components of mating pair formation. 	10	C01 , C02 , C03 , C04	BT1BT 2, BT3,
Q. 3	<p>Answer the questions in details any 4 (4* 4=16)</p> <ol style="list-style-type: none"> 1. Give a detailed account on DNA as a genetic material, emphasizing their structure 2. Mention the beneficial effects of capping and tailing of RNA 3. Give a detail account on prokaryotic translation. 4. Describe the mechanism of transformation. 5. Describe the mechanism of conjugation. 	16	C01 , C02 , C03 , C04	BT1, 2, 3
Q. 4	<p>Do as directed Identify and comment on A and B (2*2=4)</p> <div style="text-align: center;">  <p>A.</p>  </div>	4	C01 , C02 , C03 , C04	BT 1, 2 and 3

*****End of Question Paper*****