

Enrollment No. _____



**NAVVRACHANA
UNIVERSITY**
a UGC recognized University

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

Course Code: LS303 **Course Name:** Biotechnology and Bioinformatics

Date: 06/12/2021

Time: 11:30 am to 1:30 pm

Total Marks: 40

Total Pages: 3

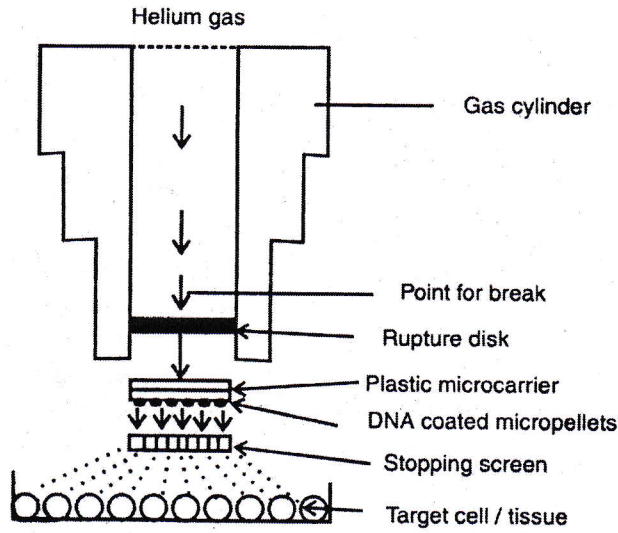
Instructions:

- Write each answer on a new page
- Draw neat and well-labelled diagrams wherever required
- * COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No.	Details	Mark s	COs *	BTL #
Q.1	<p>Q1 A. Choose the correct option (7Marks)</p> <p>1. The "one gene one enzyme" hypothesis was proposed by</p> <ol style="list-style-type: none"> Hershey and Chase Beadle and Tatum Wilkins Watson and Crick <p>2. Terminal transferase _____</p> <ol style="list-style-type: none"> removes nucleotides from the 5' ends removes terminal phosphates adds homopolymer tails to the 3'-OH ends fills single stranded gaps of DNA duplex <p>3. _____ refers to text fields of information about a biosequence which are added to a database</p> <ol style="list-style-type: none"> database annotation genomic library datbank <p>4. In the biotechnology market, the rest of the world (RoW) is bifurcated into</p> <ol style="list-style-type: none"> UK, Russia, Germany, France, Italy U.S., Canada, and Mexico Africa and Europe South America, Middle East, and Africa <p>5. Which among these is a blunt cutter?</p>	14	CO 1,2, 3,4	BT1, 2

	<p>a. Sma I b. ECoRI c. BamHI d. HindIII</p> <p>6. A subunit vaccine _____</p> <p>a. is not virulent as it does not contain the genetic material from the virus b. has infectious organism which would lose its ability to cause disease but retains its capability to act as an immunizing agent.</p> <p>c. has genetic manipulation of non-pathogenic organisms to carry and express antigen determinants from pathogenic organisms d. stimulate B lymphocytes and T lymphocytes</p> <p>7. The first genetically engineered food is</p> <p>a. white button mushroom b. flavrsavr tomato c. golden rice d. bt corn</p> <p>Q1 B. True or false with Justification(7 Marks)</p> <ol style="list-style-type: none"> 1. The transformation efficiency of the yeast episomal plasmid vector is 100-200 cells per μg. 2. During electroporation, the time and strength of the electrical field is similar 3. A Hidden Markov Model (HMM) is a general probabilistic model for sequences of symbols 4. After being given a database accession number, the data in primary databases can be changed 5. The auxotrophic mutants are strains that require a growth supplements exactly like that of the organism isolated from nature. 6. Type IV enzymes recognize two sequences in opposite orientations within the same DNA molecule to accomplish cleavage 7. Bioethics and genethics is a concern in Biotechnology 			
Q.2	<p>Answer the following in one or two sentences (5 questions X 2 Marks=10 Marks)</p> <ol style="list-style-type: none"> 1. What was the green and white revolution aimed at? 2. How are octopine type Ti plasmids different from nopaline type? 3. What is BLAST used for? 4. What is done in reproductive cloning? 5. What is DNA profiling and DNA barcoding? 	10	CO 1,2, 3,4	BT1, 2
Q.3	<p>Answer the following in detail "ANY FOUR" (4 questions X 3 marks=12 Marks)</p> <ol style="list-style-type: none"> 1. What is the principle of electroporation? What is the role of electroporation buffer? 2. What are the applications of superovulation, growth implants and meat hormones? 3. How do bacterial plasmids, bacteriophage plasmids and cosmids differ from each other? 4. Write a note on primary databases with three examples. 5. Discuss any three experiments which led to the advent of Biotechnology 	12	CO 1,2, 3,4	BT1, 2

<p>Q.4</p>	<p>How will you make a vector recombinant vaccine? Explain with an example. (4 Marks)</p> <ol style="list-style-type: none"> 1. What does this this given image depict? 2. What is the role of helium gas? 3. What will happen if there is no stopping screen? 4. What is the function of DNA coated micropellets? 	<p>4</p>	<p>CO 1,2, 3,4</p>	<p>BT1, 2</p>
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*****End of Question Paper*****