

**KENDRIYA VIDYALAYA SANGATHAN**  
**ZIET, CHANDIGARH**  
**REVISION PAPER, SET- II**  
**UNIT- IX**

(Chapters: Biotechnology - Principles and Processes, Biotechnology and its Applications)

**Subject: Biology**

**Class: XII**

**TIME: 1:00 Hr.**

**Max. Marks: 20**

**Note:** Question no. one to four is of **01** mark each, question no five and six is of **02** marks each, question number three is of **03** marks, question no five is a case study based and is of **04** marks and question number six is of **05** marks.

SN	Question	Marks
1	The term Ti means- a- Tumor integration b- Tumor inducing c- Tumor introducing d- Tumor intervening	1
2	After completion of the biosynthetic stage, the product has to be subjected to a series of processes before it is ready for marketing. This process is known as- a- Downstream processing b- Bioprocessing c- Bioinformatics d- Bioengineering	1
3	Which authority in India controls the research based on gene modification- a- BEAC b- CAGE c- GEAC d- GECA	1
4	Which one of the following controls- the origin of replication- a- Promotor region b- Operator region c- Ori c d- Cleavage site on DNA	1
5	i- Why does a genetic engineer use the same type of restriction endonuclease to cleave both vector DNA and DNA containing the gene of interest? ii- Denaturation is necessary during PCR. Give reason.	2
6	i- Write the role of lysozyme and Chitinase enzymes in genetic engineering. ii- Explain the role of Lac Z gee in the selection of transformants.	2
7	Cloning vectors are the DNA molecules that carry foreign DNA and replicate inside the host cell. pBR 322 is a type of artificial plasmid vector. i- Why plasmids are used widely in the creation of plasmid vectors? ii- What is the cleavage site in such vectors? iii- Write the role of rop.	3

8	<p>Polymerase chain reaction (abbreviated PCR) is a laboratory technique for rapidly producing (amplifying) millions to billions of copies of a specific segment of DNA, which can then be studied in greater detail.</p> <p>The PCR may be Real-Time PCR (quantitative PCR or qPCR) Reverse-Transcriptase (RT-PCR) Multiplex PCR.</p> <p>is a revolutionary method developed by Kary Mullis in the 1980s? PCR is based on using the ability of DNA polymerase to synthesize new strands of DNA complementary to the offered template strand. Because DNA polymerase can add a nucleotide only onto a preexisting 3'-OH group, it needs a primer.</p> <p>The PCR reaction starts to generate copies of the target sequence exponentially. Only during the exponential phase of the PCR reaction is it possible to extrapolate back to determine the starting quantity of the target sequence contained in the sample.</p> <ul style="list-style-type: none"> <li>i- A specific polymerase is used in PCR as it is- <ul style="list-style-type: none"> <li>a- Very heat sensitive</li> <li>b- Heat stable</li> <li>c- Act very fast at high-temperature</li> <li>d- Acts only at low temperature</li> </ul> </li> <li>ii- Assertion: Primers are 2-3 nucleotide sequences mostly of RNA. Reason: it is widely used in PCR as it provided 3' OH end for polymerization. <ul style="list-style-type: none"> <li>a- Both assertion and reason are correct and the reason is the correct explanation of assertion.</li> <li>b- Both assertion and reason are correct and the reason is not a correct explanation of assertion.</li> <li>c- Assertion is true but the reason is false.</li> <li>d-Assertion is false but the reason is true.</li> </ul> </li> <li>iii- Thermus aquaticus bacteria is useful in obtaining- <ul style="list-style-type: none"> <li>a- Taq polymerase</li> <li>b- Vent polymerase</li> <li>c- Ti polymerase</li> <li>d- Annealing Polymerase</li> </ul> </li> <li>iv- PCR is used in- <ul style="list-style-type: none"> <li>a- Detection of antigens which are present in very small quantity</li> <li>b- Amplification of DNA</li> <li>c- Cancer test</li> <li>d- All of these</li> </ul> </li> </ul>	4
9	<p>A teen girl is deficient in some enzymes that can be only cured by gene therapy processes. What type of such practices would be helpful for her? Which practice you think is the best way to protect her from sugc disorder? Explain.</p>	5

