

Topic :- Biotechnology Principles & Processes

- 7 **(a)**
Gene gun method was first developed by Prof. Stanford and coworkers at Cornell University, USA in 1987. This method is used to introduce foreign DNA into host cell
- 8 **(c)**
During extension, the enzyme DNA polymerase synthesizes the DNA segment between the primers. DNA polymerase is a heat stable enzyme
- 11 **(c)**
After the formation of the product in the bioreactors, it undergoes through some processes before a finished product to be ready for marketing. The processes include (i) separation and (ii) purification of products, which are collectively called the downstream processing
- 12 **(a)**
The stirred-tank bioreactor is well suited for large-scale production of protein of enzyme by using microbial plant/animal/human cells
- 13 **(a)**
A-DNA is vector/plasmid DNA and B-is foreign DNA.
C-The restriction enzyme that recognizes this palindrome-*Eco* RI
D-The enzyme that can link these two DNA fragment-DNA ligase
- 14 **(c)**
Restriction endonuclease was isolated for the first time by W Arber in 1962 in bacteria. They are called molecular scissors or biological scissors. In 1978 Arber, Smith and Nathan were awarded the Nobel Prize for the discovery of restriction endonuclease

- 15 **(b)**
In genetic engineering *r*DNA technology is applied to several biotechnological processes for obtaining particular biochemical improvement of genetic make up of an organism and fighting genetic defects
- 17 **(d)**
Primer and DNA polymerase.
PCR is a technique of synthesizing multiple copies of the desired gene or (DNA) *in vitro*. *The basic requirement of PCR* are DNA template, two nucleotide primers and enzyme (DNA polymerase)
- 18 **(b)**
An antibiotics resistance gene in a vector usually helps in the selection of transformed cell
- 20 **(c)**
Bioreactors are considered as vessels in which raw materials are biologically converted into specific products by microbes, plant and animal cells and or their enzymes. Small volume cultures can not give large quantities of the products. Large scale production (100-1000 L) of the products is carried out in bioreactors. A bioreactor provides the optimal conditions for obtaining the desired product by providing optimum growth conditions such as temperature, pH, substrate, vitamins, oxygen and salts. In the sparged stirred tank bioreactor, sterile air bubbles are sparged. The surface area for oxygen transfer is increased

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	D	A	B	A	A	C	A	C	D	C
Q.	11	12	13	14	15	16	17	18	19	20
A.	C	A	A	C	B	A	D	B	A	C