

Topic :- Biotechnology Principles & Processes

- Consider the following statements
 - Bioreactors are vessels of large volumes in which raw materials are biologically converted into specific products
 - One of the most commonly used bioreactors is of stirring type
 - Shake flasks are used for growing and mixing the desired materials on a small scale in the laboratory
 - A large scale production of desired biotechnological product is done by using 'bioreactors'

a) I and II b) I and III c) I, II and III d) I, II, III and IV
- The term 'Biotechnology' was given by
a) Craig Venter b) Robert Edward c) Karl Erkey d) Temin and Baltimore
- A collection of organisms, usually viruses, bacteria or yeast, which have been transformed by the addition of extra genes from another species:
a) Gene replication b) Gene cloning c) Gene pool d) Gene library
- Exonucleases cleaving nucleotides one at a time from the end of the polynucleotide chain are:
a) Specific for 5' end of RNA strand
b) Specific for 3' end of RNA strand
c) Specific for both 5' and 3' ends of nucleotide strands
d) Non-specific for 5' and 3' ends of nucleotide strand
- The genetic recombinants obtained by insertion of plasmid into 1 phage genome is called:
a) Cosmid b) Phasmid c) Phagmid d) Foreign DNA
- Which of the following statements is true?
a) In the historic cloning experiment of Dr. Wilmut, the transplanted nucleus was taken from an udder cell
b) Mammalian characters appeared first in dinosaurs
c) Heart of mammals is incapable of being in vitro
d) Pyramid of biomass is upright in pond ecosystem
- Which of the following statement is not true?
 - DNA being a hydrophilic molecule cannot pass through cell membranes
 - Agrobacterium tumefaciens* delivers a piece of DNA known as 'Z-DNA' in the Ti-plasmid which transforms normal plant cells into tumour cells to produce chemical against pathogens

III. Retrovirus, adenovirus, papillomavirus are also now used as cloning vectors in animal because of their ability to transform normal cells into cancerous cell.

IV. In genetic engineering, DNA from different sources are cut with the same restriction enzymes so that both DNA fragments have same kind of sticky ends

Choose the correct option

- a) Only I b) Only II c) Only III d) Only IV
8. Which one of the following pairs is correctly matched?
a) RNA polymerase -RNA primer b) Restriction enzymes-Genetic Engineering
c) Central Dogma-codon d) Okazaki fragments-splicing
9. Bam HI, Eco RI, Sma H are the types of:
a) Restriction endooxidases b) Restriction endonucleases
c) Restriction exonucleases d) Restriction polymerases
10. PCR technique was invented by
a) Boyer b) Kary Mullis c) Cohen d) Sanger
11. Somaclonal variation can be obtained by:
a) Hybridization b) Tissue culture
c) Application of colchicine d) Irradiation with gamma rays
12. Ability to absorb foreign DNA is:
a) Sexduction b) Competence c) Hfr d) Transduction
13. Which of the following is specifically used in genetic engineering?
a) Ligase b) Gyrase
c) DNA polymerase d) Restriction endonuclease
14. The tumour inducing capacity of *Agrobacterium tumefaciens* is located in large extrachromosomal plasmids called
a) Ri-plasmid b) Lambda phage c) pBR322 d) Ti-plasmid
15. Who discovered recombinant DNA (rDNA) technology?
a) Har Gobind Khorana b) James D Watson
c) Stanley Cohen and Herber Boyer d) Walter Sutton and Avery
16. Which of the following is used in recombinant DNA technique?
a) Cell wall of virus b) Gene which produces capsid of virus
c) Virus d) Capsid of virus
17. There are special proteins that help to open up DNA double helix in front of the replication fork. These proteins are:

- a) DNA gyrase b) DNA polymerase I c) DNA ligase d) DNA topoisomerase
18. Agarose extracted from sea weeds finds use in:
a) Spectrophotometry b) Tissue culture
c) Gel electrophoresis d) PCR
19. For selectable marker.
I. It helps to select the host cells which contain the vector and eliminate the non transformants
II. Genes encoding resistance to antibiotics like ampicillin, chloramphenicol, tetracycline or kanamycin, are useful selectable markers for *E.coli*
Which of the statements given above are correct?
a) Only I b) Only II c) I and II d) None of these
20. The first clone animal of the world is:
a) Molly sheep b) Polly sheep c) Dolly sheep d) Molly goat

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