

J.H. TARAPORE SCHOOL
WORKSHEET-7
BIOTECHNOLOGY: PRINCIPLES AND PROCESSES

Question 1

Choose the correct option.

- i. The enzymes that cleave DNA strand at any point within, but not at the end are
 - a. Exonucleases
 - b. Endonucleases
 - c. Lysing enzymes
 - d. Aldolases

- ii. Extrachromosomal DNA molecules occurring in bacterial cells along with bacterial chromosome are
 - a. Phasmids
 - b. Phages
 - c. Plasmids
 - d. Cosmids

- iii. In EcoRI (Restriction endonuclease) 'R' denotes
 - a. Genus
 - b. Species
 - c. Strain
 - d. Order of identification

- iv. DNA is a-
 - a. Hydrophobic molecule
 - b. Hydrophilic molecule
 - c. Both a and b
 - d. None of these

- v. Bacterial cells are made competent by placing them in
 - a. sodium chloride solution
 - b. cold and dilute calcium chloride solution
 - c. dilute ammonium chloride solution
 - d. none of these

- vi. The gene lac-z in plasmid vector is responsible for production of Beta galactosidase which
 - a. converts x-gal into white product.
 - b. converts x-gal into blue product.
 - c. acts as ori
 - d. All of the above

- vii. The separated DNA strand can be seen on staining with
 - a. X-rays
 - b. UV rays
 - c. Fluorescent dye ethidium bromide
 - d. Fluorescent dye followed by UV radiation.

- viii. The technique for separation of nucleic acids based on net difference in their net charges in an electric field is
 - a. Cloning
 - b. Electrophoresis
 - c. Elution
 - d. Insertion

- ix. Recombinant DNA is
- Synthetic DNA
 - Chimeric DNA
 - Foreign DNA
 - None of these
- x. During amplification after 30 cycles, a single DNA can produce
- 2^{30} molecules of DNA
 - 300 molecules of DNA
 - 3000 molecules of DNA
 - 30000 molecules of DNA
- xi. The enzymes that cleave both strands of DNA at specific sequence are called
- Exonucleases
 - Endonucleases
 - Restriction endonucleases.
 - Lygases
- xii. Precipitation of DNA from the medium is done by adding
- Methanol
 - Ethanol
 - Chilled ethanol
 - Both a and b.

Question -2

Answer the following questions. (Each question carries 3 marks)

- Write the characteristics features of cloning vector.
- Explain electrophoresis technique.
- Explain the methods of introduction of foreign DNA in host cells.
- Write blue-white method of selection in r-DNA technology.
- What is PCR? Explain it with the help of diagram.
- What are bioreactors? Explain about the most commonly used bioreactors with diagram .

Question- 3

Answer the following questions. (Each question carries 2 marks)

- Write the features of pBR 322.
- Write the nomenclature of Restriction endonuclease Bam HI and Hind II.
- What are palindromic sequences and sticky ends?

Question-4

Write the full form of the following abbreviations

- BAC
 - YAC
 - ori
 - r-DNA
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