

Topic :- Biotechnology Principles & Processes

1. PCR and Restriction Fragment Length Polymorphism are the methods for:
a) Genetic transformation
b) DNA sequencing
c) Genetic fingerprinting
d) Study of enzymes
2. Restriction enzymes may be used for:
a) Making recombinant DNA
b) Gene mapping
c) Diagnosis of genetic diseases
d) All the above
3. *Vent* polymerase enzyme used in PCR is isolated from
a) *Thermococcus litoralis*
b) *Thermus aquaticus*
c) *E. coli*
d) *Salmonella typhimurium*
4. Genetically bacteria have been successfully used in the commercial production of:
a) Human insulin
b) Testosterone
c) Thyroxine
d) Melatonin
5. DNA fingerprinting method is very useful for:
a) DNA tests for identity and relationships
b) Forensic studies
c) Polymorphism
d) All of the above
6. Plasmids are autonomously replicating mini chromosomes found in:
a) Bacteriophage lambda
b) *Leishmania donovani*
c) *Escherichia coli*
d) *Paramecium caudatum*
7. Production of a human protein in bacteria in genetic engineering is possible because:
a) Bacterial cell can carry out the RNA splicing reactions
b) The human chromosome can replicate in bacterial cell
c) The mechanism of gene regulation is identical in humans and bacteria
d) The genetic code is universal
8. Reverse transcriptase:
a) Disintegrates host DNA
b) Translates host DNA
c) Transcribes viral RNA to DNA
d) Polymerises host DNA
9. An example of gene therapy is:

- a) Production of injectable Hepatitis B vaccine
 b) Production of vaccines in food crops like potatoes which can be eaten
 c) Production of test tube babies by artificial insemination and implantation of fertilized eggs
 d) Introduction of gene for adenosine deaminase in persons suffering from Severe Combined Immuno-Deficiency (SCID)
10. Synthetic DNA or sDNA is:
 a) DNA synthesized in lab without any template
 b) DNA synthesized in the cell without any template
 c) DNA synthesized in the lab, without any nucleotide
 d) DNA synthesized in the cell without any nucleotide
11. Stirred-tank bioreactors have advantages over shake flasks because they
 a) Provide high temperature and pH
 b) Provide better aeration and mixing properties
 c) Do not allow the entry of CO₂
 d) Are easy to operate
12. During 'gene cloning' which is called a gene taxi?
 a) Vaccine b) Plasmid c) Bacteria d) Protozoa
13. TATAATG sequence near the RNA start point of prokaryotic promoter is:
 a) Nicks b) DNA marker c) Pallindrome d) Pribnow box
14. I. Copy number is defined as the number of copies of plasmid present in a cell
 II. It varies from 15-100 copies per cell
 Choose regarding the above statements
 a) I is true, II is false b) II is true, I is false c) Both are true d) Both are false
15. Which one of the following hydrolyses internal phosphodiester bonds in a polynucleotide chain?
 a) Lipase b) Protease c) Exonuclease d) Endonuclease
16. What does Bt stand for the popular crop Bt cotton?
 a) Best b) Best type c) Biotechnology d) Bacillus thuringiensis
17. Which of the following statement is incorrect?
 a) Cosmid contains gene coding for viral protein
 b) Cosmid replicates like plasmids
 c) Cosmid has antibiotic resistant marker gene
 d) *Cos* site has 12 bases helping to join complete genome to make it circular
18. An attenuated virus:
 a) Is a virus that is non-pathogenic

- b) In an elongated viral particle
 - c) Can transfer recombinant DNA to other viruses
 - d) Will not produce an immune response
19. Which of the following has popularized the PCR (polymerase chain reaction)?
- a) Easy availability of DNA template
 - b) Availability of synthetic primers
 - c) Availability of cheap deoxyribonucleotides
 - d) Availability of 'Thermostable' DNA polymerase
20. Choose the correct statement with reference to 'Dolly':
- a) She was created by taking nucleus from unfertilized eggs and cytoplasm from unfertilized eggs
 - b) She was created by taking nucleus from udder cells and cytoplasm from unfertilized eggs
 - c) She was created by taking cytoplasm from udder cell and nucleus from unfertilized eggs
 - d) She was created by taking cytoplasm from udder cell and nucleus from fertilized eggs

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