

Topic :- Biotechnology Principles & Processes

- Which is non-invasive technique of genetic counselling?
 - Amniocentesis
 - Chorionic biopsy
 - Foetal blood sampling
 - Ultrasonography
- The colonies of recombinant bacteria appear white in contrast to blue colonies of non-recombinant bacteria because of:
 - Insertional inactivation of alpha-galactosidase in non-recombinant bacteria
 - Insertional inactivation of alpha-galactosidase in recombinant bacteria
 - Inactivation of glycosidase enzyme in recombinant bacteria
 - Non-recombinant bacteria containing beta-galactosidase
- Which of the following steps are catalyzed by *taq* polymerase in a PCR reaction?
 - Denaturation of template DNA
 - Annealing of primers to template DNA
 - Extension of primer end on the template DNA
 - All of the above
- In the process of recombinant DNA technology after several treatment the purified DNA is precipitated by adding chilled ethanol
 - The bacterial/plant, animal cell is broken down by enzymes to release DNA, along with RNA, proteins, polysaccharides and lipidsChoose the correct option for above statements
 - I is true, but II is false
 - I is false, but II is true
 - I and II are true
 - I and II are false
- Which of the statements are correct about bioreactors?
 - It provides all the optimal conditions for achieving the desired product by providing optimal growth conditions like temperature, pH, substrate, salt, vitamin and oxygen
 - It is suited for large-scale production of microorganisms under aseptic conditions for a number of daysCorrect option is
 - Only I
 - Only II
 - I and II
 - None of the above
- Taq* polymerase enzyme used in PCR is isolated from
 - Thermus aquaticus*
 - Thermococcus litoralis*
 - Salmonella typhimurium*
 - None of the above

7. The first hormone artificially produced by culturing bacteria is:
 a) Insulin b) Thyroxine c) Testosterone d) Adrenaline
8. A gene is made up of:
 a) DNA b) RNA c) Either DNA or RNA d) Amino acids
9. The first restriction endonuclease type II ...A..., was isolated by Smith, Wilcox and Kelley from ...B... bacterium. It was formed to cut DNA molecules at a particular point by recognizing a specific sequence of six base pairs, known as the ...C... . Here A, B and C can be
- | | | | |
|-------------------|-----------------------------------|----------------------|--|
| A | B | C | |
| a) <i>Eco</i> RI | <i>Escherichia</i> RY 13 | Restriction sequence | |
| b) <i>Eco</i> RII | <i>E. coli</i> R 245 | Recognition sequence | |
| c) <i>Hind</i> II | <i>Haemophilus influenza</i> | Recognition sequence | |
| d) <i>Bam</i> HI | <i>Bacillus amyloliquefaciens</i> | Restriction sequence | |
10. In gel electrophoresis, the separated DNA fragments are visualized after staining the DNA with ...A... followed by exposure to ...B...
 Here A and B refers to
- | | | |
|---------------------|--------------------|-------------------------------------|
| A | B | |
| a) B-galactosidase | Infrared radiation | b) Ethidium bromide UV radiation |
| c) Ethidium nitrate | γ -rays | d) Ethidium chloride Radiowave |
11. In DNA fingerprinting:
 a) A positive identification can be made
 b) Multiple restriction enzyme digests/generate unique fragments
 c) The polymerase chain reaction amplifies fewer DNA
 d) The variability of repeated sequences between two restriction sites is evaluated
12. Cosmid is:
 a) Extragenetic material in Mycoplasma b) Circular DNA in bacteria
 c) Extra DNA in bacteria d) Fragment of DNA inserted in bacteria for forming copies
13. Following enzymes/chemical/technique are used in the process of gel electrophoresis
 I. sample DNA is cut into fragments
 II. restriction endonucleases
 III. agarose gel
 IV. ethidium bromide
 V. UV-radiation
 VI. elution
 Mark the correct sequence of their use
 a) I, II, III, VI, V and IV b) I, II, III, VI, V and IV c) IV, V, VI, I, II and III d) I, II, IV, V, VI and III

14. Improvement of genotype of an organism by addition of some foreign genes is:
- a) Genetic diversity
 - b) Gene handling
 - c) Tissue culture
 - d) Genetic engineering
15. Which one is a true statement regarding DNA polymerase used in polymerase chain reaction?
- a) DNA polymerase is responsible for DNA synthesis
 - b) It is isolated from Protozoa
 - c) It serves as a selectable marker
 - d) It is used to ligate introduced DNA in recipient plant cell
16. Most sensitive technique to detect malignant cell in non-hodgkin's lymphoma is
- a) Polymerase chain reaction
 - b) Gene therapy
 - c) Stem cell therapy
 - d) None of the above
17. Gene therapy involves:
- a) Introducing of a normal genes in cell
 - b) Eliminating defective and useless genes
 - c) Treating of defective genes with radiations
 - d) Replacement of defective genes by normal ones
18. Human Genome project was the thought of:
- a) Jean Dausset
 - b) Watson
 - c) Crick
 - d) None of the above
19. Which conserved motifs are found in *E.coli* genes?
- a) TATA box
 - b) CAAT box
 - c) Pribnow box
 - d) All of these
20. Given below is a sample of a portion of DNA strand giving the base sequence on the opposite strands. What is so special shown in it?
- 5' _____ GAATTC _____ 3'
3' _____ CTTAAG _____ 5'
- a) Replication completed
 - b) Deletion mutation
 - c) Start codon at the 5' end
 - d) Palindromic sequence of base pairs