Chapter 9
Recombinant DNA Technology

1. There are some specific DNA methylase for restriction-modification
(A) these are similar to associate endonucleases in recognizing sequence.
(B) *EcoR*I methylase recognizes and methylates at the sequence "GAGCAT".
(C) methyl group is transferred from S- denosylmethionine (SAM) to a specific base in the recognition sequence.
(D) *BamH*I only cut the restriction site if the DNA is methylated.

2. The applications of calf intestinal alkaline phosphatase (CIAP) are
(A) DNA purification by complete inactivation in heat.
(B) linear vector self-ligation reduction and vector background during cloning.
(C) preparation of template prior to 5'-end labeling.
(D) dephosphorylation of protein.

3. Which of the following restriction endonucleases correctly matched with their recognition sequences?
(A) *BamH*I – 5'-GGATCC-3'
(B) *Sau3A*I – 5′-GATC-3′
(C) *EcoR*I – 5'-GGTATC-3′
(D) *Taq*I – 5'-TCGA-3′

4. What is pYAC3?
(A) Constructed by the replacement of smaI site in the SUP4 intron with the *Sna*BI site.
(B) Yeast artificial chromosome with ds-DNA-11226 BP.
(C) Extracted from *E. coli* RI.
(D) Related to vectors YIp5, YCp19 and yeast sup4-o gene.

5. What are the limitations of Random Amplification of Polymorphic DNA (RAPD)?
(A) In case of mismatches between primer no or less PCR product is obtained.
(B) It requires long primer that should be of 80–100 nucleotides.
(C) Difficult to distinguish whether amplified DNA is heterozygous or homozygous.
(D) Very less and limited numbers of fragments formed.

6. Choose the correct statements for the preparation of genomic libraries.
(A) The first step is the isolation of genomic DNA
(B) Physical damage to the DNA should be avoided
(C) If a nuclear DNA library is to be constructed, organelle DNA is to be removed
(D) For the construction of organelle library, organelle DNA is purified from the nuclear DNA

7. A vector should have
(A) an origin of replication.
(B) selectable markers.
(C) unique restriction site.
(D) multiple sites for restriction enzymes.

8. Which of the following are correctly matched?

(A) Polymerase – *Taq* polymerase

(B) Template – double stranded DNA

(C) Primer – oligonucleotide

(D) Synthesis – 5′ to 3′ direction

9. Northern blotting is

(A) analogous to southern blotting.

(B) separation of RNA based on their size.

(C) used to analyze DNA as well as RNA.

(D) isolation of mRNA using oligo (dT) cellulose chromatography.

10. DNA fragments in a restriction digest can be separated by electrophoresis in

(A) polyacrylamide **(B)** agarose gel.

(C) ETDA **(D)** triacetate.

11. Bacterial plasmid genes of non-chromosomal origin are associated with

(A) providing resistance against antibacterial agents.

(B) the degradation of toxic materials.

(C) the production of certain toxins.

(D) the transfer of genetic material from one cell to another cell.

12. Plasmid mediated antibiotic resistances in bacteria are acquired by

(A) hydrolysis by β-lactamase (penicillin resistance).

(B) expression of aminoglycoside modifying enzyme (kanamycin resistance).

(C) mutation in DNA gyrase (quinolone resistance).

(D) overproduction of dihydrofolate reductase (trimethoprim resistance).

Answer Key

1. (A), (B)
2. (B), (C), (D)
3. (A), (B), (C)
4. (A), (C), (D)
5. (A), (C)
6. (A), (B), (D)
7. (A), (B), (C)
8. (A), (C), (D)
9. (A), (B), (D)
10. (A), (B)
11. (A), (B), (C), (D)
12. (A), (B)