

Unit 1

1. What is the reaction in DNA replication catalyzed by DNA ligase?
 - a) Addition of new nucleotides to the leading strand
 - b) Addition of new nucleotide to the lagging strand
 - c) Formation of a phosphodiester bond between the 3'-OH of one Okazaki fragment and the 5'-phosphate of the next on the lagging strand
 - d) Base pairing of the template and the newly formed DNA strand
2. Which of the following enzymes remove supercoiling in replicating DNA ahead of the replication fork?
 - a) DNA polymerases
 - b) Helicases
 - c) Primases
 - d) Topoisomerases
3. DNA unwinding is done by _____
 - a) Ligase
 - b) Helicase
 - c) Topoisomerase
 - d) Hexonuclease
4. Which of the following enzymes is the principal replication enzyme in E. coli?
 - a) DNA polymerase I
 - b) DNA polymerase II
 - c) DNA polymerase III
 - d) None of the mentioned
5. Which enzyme used to join bits of DNA?
 - a) DNA polymerase
 - b) DNA ligase
 - c) Endonuclease
 - d) Primase
6. During replication, Okazaki fragments elongate
 - (a) leading strand towards the replication fork
 - (b) lagging strand towards the replication fork
 - (c) leading strand away from the replication fork
 - (d) lagging strand away from the replication fork
7. What is a mode of replication in E.coli?
 - a) Intermediate
 - b) Dispersive

- c) Conservative
d) Semiconservative
8. What is the origin of replication?
a) Particular site at which DNA replication starts
b) Site which prevents initiation
c) Random location on the DNA
d) Site at which replication terminated
9. Which of the following has the self-repairing mechanisms?
a) DNA and RNA
b) DNA, RNA and protein
c) Only DNA
d) DNA and proteins
10. What is the function of enzyme involved in base excision repair?
a) Addition of correct base
b) Addition of correct nucleotide
c) Removal of incorrect base
d) Removal of phosphodiester bond
11. Why recombinational repair system is called double strand break repair?
a) Both strands are broken
b) One strand is broken
c) No strand is broken
d) Both strand act as template
12. In SOS repair system cleavage of LexA and UmuD is mediated by _____
a) RecB
b) RecA
c) RecC
d) UvrA
13. The okazaki fragments are present onstrand
Template leading lagging all the above
14. Replication occurs in...phase
G1 S G2 M
15. In replication of DNA synthesis of new strand always occurs in the direction
5'-3' 3'-5' both forward
16. DNA polymeraseremoves RNA primer and replaces DNA
I II III IV
17. The genetic code is _____
a) Triplet b) Quadruplet c) Doublet d) Singlet
18. A codon contains how many nucleotides?
a) 1

- b) 2
- c) 3
- d) 4

19. The initiation codon is _____

- a) AUG
- b) UAA
- c) UAG
- d) UGA

20. The termination codon is not _____

- a) AUG
- b) UAA
- c) UAG
- d) UGA

21. How many t-RNAs are required to translate all 61 codons?

- a) 31
- b) 32
- c) 30
- d) 29

22. Which position of a codon is said to wobble?

- a) First
- b) Second
- c) Third
- d) Fourth

23. The genetic code translated the language of _____

- a) Proteins into that of RNA
- b) Amino acids into that of RNA
- c) RNA into that of proteins
- d) RNA into that of DNA

24. Wobble hypothesis was first proposed by _____

- a) Nirenberg
- b) Watson and Crick
- c) Watson
- d) Crick

25. The operon hypothesis was discovered by

Watson and Crick Mendel Jacob and Monod niren berg

26. The structural gene ... are responsible for the synthesis of galactoside permease enzyme

z y a all the above

27. The structural gene z are responsible for the synthesis of enzyme

thiogalactoside galactoside permease transacetylase b-galactosidase

28. The sequence of the structural genes in lac operon are.....

lacA-lacZ-lacY lacZ-lacA-lacY

lacZ-lacY-lacA lacA-lacY-lacZ

29. Lac operon will be turned on when.....

Lactose is less than glucose

Lactose is less than medium

Glucose is enough in the medium

Lactose is more than glucose

30. Lac operon is an example of.....

Only positive regulation

Only negative regulation

both positive and negative regulation regulation

sometimes positive sometime negative

Unit 2

1. Synthesis of RNA from DNA template is called _____

a) Transcription b) Translation c) Transition d) Transversion

Transversion

2. Simple proteins are polymers of _____

a) Sugars b) Amino Acids c) Fatty acids d) Globular proteins

proteins

3. Methionine is specified by initiation codon _____ to begin polypeptide chain synthesis.

a) AUG b) UGA c) AAA d) AGU

4. The enzyme required for transcription is _____

a) Restriction enzyme b) DNA polymerase c) RNA polymerase d) RNAase

RNAase

5. _____ is a process in which RNA is synthesized from DNA template.

a) Transcription Transformation b) Translation c) Transition d)

6. Individual amino acid during protein synthesis specified bycodons.
a) 3 b) 20 c) 64 d) 61
7. Translation is the
a) Synthesis of protein from a mRNA b) Synthesis of DNA from a mRNA
c) Synthesis of RNA from a mRNA d) Synthesis of protein from a DNA
8. The process of formation of RNA is known as _____
a) Replication
b) DNA repair
c) Translation
d) Transcription
9. Transcription occurs
a) unidirectionally
b) bidirectionally.
10. Which is INCORRECT statement about the transcription unit?
a) It is a transcribed segment of DNA
b) Eukaryotes have monocistronic transcription unit
c) Prokaryotes also have a monocistronic transcription unit
d) Immediate product of transcription is primary transcript
11. Which of the following is TRUE for the RNA polymerase activity?
a) DNA dependent DNA synthesis
b) Direct repair
c) DNA dependent RNA synthesis
d) RNA dependent RNA synthesis

View Answer

12. Who discovered RNA polymerase?
a) Samuel B. Weiss
b) Nirenberg
c) Watson and Crick
d) Darwin

View Answer

13. Which of the following ensure stable binding of RNA polymerase at the promoter site?
a) DNA photolyase
b) Sigma factor
c) DNA glycosylase

d) RecA

View Answer

14. What is the work of the sigma factor in transcription?

a) Helicase action

b) Transcription initiation

c) Transcription elongation

d) Transcription termination

15. factor is used for promoter recognition

a) Sigma 32

b) Sigma 70

c) Sigma 60

d) Sigma 40

View Answer

16. base pairs of DNA is transcribed by RNA polymerase in one go.

a) 5-6

b) 3

c) 4

d) 7-8

17. Which of the following transcription termination technique has RNA dependent ATPase activity?

a) Intercalating agents

b) Rho dependent

c) Rho independent

d) Rifampicin

18. Shine-Dalgarno sequence is present in the _____

a) hnRNA

b) mRNA

c) tRNA

d) siRNA

19. The first amino acid incorporated at the N-terminus of polypeptide is

a) methionine

b) cysteine

c) tryptophan

d) valine.

20. Translation is the.....

Synthesis of DNA from a mRNA template

Synthesis of protein from a mRNA template

Synthesis of RNA from a mRNA template

Synthesis of RNA from a DNA template

21. Translation occurs in.....

Nucleus Cytoplasm Nucleolus Lysosome

22. During translation, protein are synthesized

By ribosome using the information on DNA

By lysosome using the information on DNA

By ribosome using the information on mRNA

By ribosome using the information on tRNA

23.molecule serves as an adaptor molecule during protein synthesis

mRNA tRNA rRNA mRNAand tRNA

24. In prokaryotes, the ribosomal binding site on mRNA is called.....

Hogness sequence Shine-dalgarno sequence N-formyl methionine all of these

25.is the energy rich molecule requires for initiation of translation

ATP GTP CTP AMP

26. In eukaryotes, translation is initiated by binding of ribosome to the

Pribnows box Hogness box 5'cap poly A tail

27. The 70S ribosome has.....binding sites of aminoacyl RNA

A site P site E site all the above

28. In translation process, ribosome moves on mRNA in.....direction.

5'-3' 3'-5' reverse both a and b

29. Which of the following is not termination codon.....

UAA AUG UAG UGA

30. In splicing.....are removed to form mature mRNA.

Exon Intron primers sequence

Unit 3

1. Restriction endonuclease produce.....cuts.
 - a) External
 - b) internal
 - c) internal and external
 - d)at one end
2. Cloning vector are DNA molecules that can carry
 - a) Foreign DNA fragment
 - b) Chromosome
 - c) Foreign protein
 - d) Enzyme
3. Select the wrong statement about plasmids?
 - a) It is extrachromosomal
 - b) It is double stranded
 - c) Its replication depends upon host cell
 - d) It is closed and circular DNA
4. What does PCR stand for?
 - a) Polymerase Chronic Reagent
 - b)Principle Chorionic Reliability
 - c)Polymerase Chain Reaction
 - d)Probably Cannot React
5. A method used to make millions of copies of a specific segment of DNA from a very small amount of DNA.
 - a) DNA Fingerprint
 - b) Electrophoresis
 - c) Polymerase Chain Reaction
 - d)Restriction Enzyme
6. Southern blotting is
 - a) Attachment of probes to DNA fragments
 - b) Transfer of DNA fragments from electrophoretic gel to a nitrocellulose sheet
 - c) Comparison of DNA fragments to two sources
 - d) Transfer of DNA fragments to electrophoretic gel from cellulose membrane
7. The polymerase chain reaction is _____.
 - a) It is a DNA sequencing technique.
 - b) It is a DNA degradation technique
 - c) It is a DNA amplification technique
 - d) All of the above
8. Denaturation is the process of _____.
 - a) Heating between 72°C
 - b) Heating between 40 to 60°C
 - c) Heating between 90 to 98°C
 - d) None of the above
9. In genome Southern blotting can be used to identify _____.
 - a) Protein
 - b) number of sequence
 - c) DNA fragments
 - d) RNA sequences
10. Restriction enzyme is known as
 - a) Molecular Scissor
 - b) Molecular Knive
 - c) Molecular cutter
 - d) All the above
11. Plasmids replicate independently due to the presence of an.....
 - origin of replication
 - vector
 - markers
 - polylinker site
12. The lambda phage consists of head
 - circular
 - rectangular
 - icosahedral
 - triangular
13. The recognition site consists ofbase pairs.
 - 4-8
 - 2-3
 - 5
 - 10
14. The DNA that carries the desired gene to the host cell is called as.....
 - Template
 - cloning vector
 - bacteria
 - all of these
15. In nomenclature of restriction enzyme EcoRI , 'co' is name of.....
 - Genus
 - Species
 - subspecies
 - all of these

16. The single stranded extensions of lambda DNA are known as
 complementary site cos ends ss DNA both a and b
17. Foreign DNA upto kb size can cloned in cosmid vectors
 5 70 45 50
18. A phagemid is a hybrid of a
 plasmid and f₁ phage DNA plasmid and cosmid two plasmids
 plasmid and bacteria
19. The rDNA can be delivered into bacterial cell by
 Transformation transduction electroporation all of these
20. In the process of transformation the competent cell can intake rDNA with the size.....
 5-15kbp 5bp 45kbs 20 kbp
21. To introduce rDNA into *E.coli* cells rDNA is treated with.....
 CaCl₂ NaCl Calcium carbonate all the above
22. In electroporation method to introduce rDNA into *E.coli* cellskilovolt/cm
 electric pulse is generate between elevantrodes for 4.6 milliseconds.
 2.5 8.5 5 12
23. Northern blotting is introduced by
 Ed Southern Nothern Alwine Watson
24. The mRNA present in the agarose gel are transformed to.....filter paper by the blotting method.
 Nitrocellulose Cellulase Whatmann aminobenzylloxymethyl
25. Northern blotting is used in separation and identification of.....
 DNA Protein RNA Gene
26. The transfer of protein from electrophoresed gel to nitrocellulose filter is called asblotting.
 Southern northern western all the above
27. The gel used in western blotting is.....
 SDS-PAGE Agarose starch Native
28. The ideal cloning vector have
 Origin of replication markers polylinker site all the above
29. Thermostable DNA polymerase used in PCR is.....
 Taq polymerase pfu polymerase vent polymerase DNA polymerase III
30. Amp^r isof cloning vector
 Origin of replication marker polylinker site vector