

કુલ સમય:— : ૬૦ મીનીટ

કુલ પ્રશ્નો : ૫૦

વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૩૫

નોંધ : વિદ્યાર્થીએ માત્ર ૩૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૩૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

- Which is a characteristic of this replication fork?
 - Strands I and II have base sequences that are identical to each other.
 - Strands II and IV have an antiparallel orientation as the fork moves to the right.
 - Strands I and III will be covalently bonded to each other when replication is completed.
 - Strands III and IV will be H-bonded to each other when replication is completed.
- Which is a property of Okazaki pieces in an E. coli replication fork?
 - Okazaki pieces are joined together by DNA polymerase I to form a long chain.
 - Okazaki pieces are polymerized in the 3'→5' direction by DNA polymerase III.
 - An Okazaki piece for the leading strand is polymerized to a length of 1000-2000 nucleotides.
 - An Okazaki piece for the lagging strand has a base sequence complementary to its template.
- When will replication fork stop replicating DNA?
 - when its movement is halted by a Ter sequence
 - when it is denatured by the Tus protein
 - when it reaches the OriC region
 - when a topoisomerase removes supercoils
- Which is a characteristic of E. coli DNA polymerases?
 - Pol I functions as a multimeric protein that participates in DNA repair.
 - Pol I functions as a core enzyme that clamps around the DNA.
 - Pol III functions as a holoenzyme that polymerizes DNA with high processivity.
 - Pol III functions as a single polypeptide chain that can form phosphodiester bonds.
- Which function can be carried out by DNA replication proteins?
 - Topoisomerases wind the DNA into a double-helix.
 - DNA ligase can initiate new DNA chains
 - SSB converts double-stranded DNA into single-stranded DNA.
 - Helicases break hydrogen bonds in the DNA.
- Which position of a codon is said to wobble?
 - First
 - Second
 - Third
 - Fourth
- Wobble hypothesis was first proposed by _____.
 - Nirenberg
 - Watson and Crick
 - Watson
 - Crick
- Which of the following is Not a mRNA codon?
 - UAG
 - UCC
 - TAG
 - AGC
- Genetic code is not _____.
 - With commas
 - Universal
 - Overlapping
 - Degenerate
- Number of non sense codons in genetic codon is _____.
 - 1
 - 2
 - 3
 - 4
- Which of the following DNA types forms under high salt concentration?
 - B- DNA
 - A- DNA
 - Z- DNA
 - C- DNA
- In which of the following DNA two anti-parallel chains are held together by base pairs?
 - A-DNA
 - B-DNA
 - Z-DNA
 - All of the above

13. Which of the following statement is not true.
 - a. A-DNA is wider and longer than B-DNA
 - b. Two strands of DNA are anti-parallel
 - c. DNA double helix is held together by two forces
 - d. Sequence of base carries genetic information
14. The actual site of protein synthesis is the
 - a. nucleus.
 - b. mitochondrion.
 - c. chloroplast.
 - d. ribosome
15. If the DNA template reads “ATA”, then which of the following would be the corresponding sequence on the mRNA?
 - a. UAU
 - b. ATA
 - c. TUT
 - d. TAT
16. What is the role of tRNA during translation?
 - a. bond to open the DNA strand to carry the code for protein synthesis out of the nucleus
 - b. carry ribosomes to the site of protein synthesis
 - c. break apart mRNA and send it back to the nucleus so that it can be reused
 - d. Carry amino acids to the mRNA for correct placement into the protein chain
17. _____ is the adaptor that is key to converting the triplet codons of mRNA into the protein polymers.
 - a. tRNA
 - b. rRNA
 - c. mRNA
 - d. siRNA
18. Which of the following statements are TRUE?
 - a. The mRNA is translated from 5' to the 3' end
 - b. The mRNA is translated from 3' to 5' end
 - c. During transcription, the mRNA is synthesized in the 3'to 5' direction
 - d. A and C are both true
19. AIDS is a _____.
 - a. Cancer
 - b. Virus born disease
 - c. Bacterial disease
 - d. Deficiency disease
20. Operator gene of Lac Operon is turned ON when lactose molecule binds to____.
 - a. mRNA
 - b. Promotor gene
 - c. Repressor protein
 - d. Operator gene
21. Genes involved in turning on and off the transcription of structural genes is called _____.
 - a. polymorphic genes
 - b. operator genes
 - c. redundant genes
 - d. regulatory genes
22. Gene which increases the frequency of mutation in other genes is called____.
 - a. regulatory gene
 - b. hypostatic gene
 - c. poly gene
 - d. mutagene
23. Dr. H. G. Khorana won the Nobel prize for research on _____.
 - a. Immunology
 - b. Oral contraceptives
 - b. hormones
 - d. genetic code
24. At what temperature do denaturation of DNA double helix takes place?
 - a) 60° b) 54° c) 74° d) 94°
25. Genomic libraries are made from
 - a. genomic DNA of an organism
 - b. genomic RNA of an organism
 - c. genomic cDNA of an organism
 - d. genomic mRNA of an organism
26. How many DNA duplexes are obtained from one DNA duplex after 4 cycles of PCR?
 - (a) 8 (b) 4 (c) 32 (d) 16

27. How many types of DNA libraries are possible?
a) 1 b) 2 c) 3 d) 4
28. cDNA is synthesized from _____
a) Protein chain b) tRNA c) mRNA d) DNA
29. What is a DNA library?
a) A DNA fragment inserted into a vector
b) A general collection of all genes sequenced thus far
c) All DNA fragments identified with a probe
d) A collection of DNA fragments that make up the entire genome of a particular organism
30. Which of the following enzyme is required for end to end joining of DNA?
a) DNA ligase
b) Restriction endonuclease
c) RNA polymerase
d) DNA polymerase
31. DNA extracted from an organism is cut into gene size pieces with
a. Polymerase enzyme
b. Helicase enzyme
c. Gyrase enzyme
d. Restriction enzyme
32. A collection of total genomic DNA from a single organism is called
a. gene library
b. gene cloning
c. gene regulation
d. gene expression
33. *E. coli* is generally used for gene cloning because
a. it supports the replication of recombinant DNA
b. it is easy to transform
c. it is free from elements that interferes with replication and recombination of DNA
d. all of these
34. DNA fingerprinting was developed by _____.
a. James Watson b. Alec Jeffery c. Khorana d. Crick
35. Which of the following technique is used in DNA Fingerprinting.
a. Western Blotting b. Southern Blotting c. Northern Blotting d. Eastern Blotting
36. DNA Fingerprinting relies on identifying specific
a. coding sequences b. Non- coding sequences c. Promoter d. None of these
37. Which tissue samples are used in DNA fingerprinting?
a. Hair b. Blood c. Skin d. all
38. Part of plant used for culturing is called,
A Scion B Explant C Stock D Callus
39. Which of the following plant cell will show Totipotency
A xylem vessels B sieve tube C Meristem D Cork cells
40. Which vector is mostly used in crop improvement?
A Plasmid B Cosmid C Phasemid D Agrobacterium
41. Agar is a polysaccharide obtained from
A Seaweed B Bacteria C Fish D None
42. The ideal pH of tissue culture media is
A 4 – 5 B 5 – 6 C 6 – 7 D None
43. The technique of cryopreservation involves which of the following
A freezing and B Thawing anreculture C freezing and reculture D both a and b
44. Meristem culture can be used for which of the following purposes
A Recovery of virus free plants
B Clonal propagation
C Germplasm exchange and conservation
D None of the above
45. Which is the most commonly used as cryoprotectant
A Proline
B Sorbitol
C DMSO
D Glyserol

46. In which of the following tree species embryo culture is used to overcome dormancy
- A Taxus
 - B Iris
 - C Prunus
 - D all of the above
47. Among the given agents which form is used as cryoprotectants
- A DMSO, Proline and valine
 - B DMSO, Glycerol & Proline
 - C DMSO, Glycerol & Acetic Acid
 - D DMSO, Arginine & Acetic Acid
48. Cryopreservation is based on which of the following
- A liquid carbon dioxide
 - B liquid helium
 - C liquid nitrogen
 - D Both a and c
49. Ethylene promotes which of the following
- A activity of cell wall destroying enzymes
 - B ageing of leaves
 - C activity of chlorophyllase
 - D all of the above
50. Which of the following is not correct about abscisic acid
- A it is a naturally occurring growth inhibitor
 - B it destroys effect of GA and promotes dormancy in buds and seeds
 - C it is synthesized in leaves
 - D precursor of ABA is malic acid