

ZOOLOGY IMPORTENT INSIDE ONE MARK QUESTIONS

UNIT:II MOLECULAR GENETICS

1. The concept of the gene was first explained by----- (Gergor Mendel) in 1860's.
2. Each gene occupies a specific position called -----(Locus).
3. Genes may exist in several alternate forms called----- (Alleles).
4. Genes are capable of----- (Self-duplication) producing their own copies.
5. Wilhelm Hofmeister, had observed that cell bodies during mitosis called----- (Chromosome).
6. Friedrich Miescher, isolated a substance from the cell nuclei and called it as----- (Nuclein).
7. Altman(1889) was renamed a nuclein acid ,and is now known as -----(DNA).
8. -----(Griffith's) experiment proved that DNA is the Genetic material.
9. Have double carbon-nitrogen ring structure and are called----- (Purines).
10. Have single ring structure and these are called----- (Pyrimidines).
11. Nucleic acids are a long chain or polymer of repating subunits called----- (Nucleotides).
12. Those containing Deoxyribose sugar are called----- (Deoxyribo Nucleic acid(DNA)).
13. The chemical bond that link the sugar components of adjacent nucleotides are called----- (Phosphodiester bond).
14. The double helix model for DNA was proposed by----- (James Watson and Francis Crick)in 1953.
15. ----- (Fraenkel-Conrat and Singer) 1957 first demonstrated that RNA is the genetic material.
16. The term 'RNA world' first used by----- (Walter Gilbert)in 1986.
17. The catalytic RNA is known as----- (Ribozyme).
18. ----- (Hershey and Chase) clearly indicates that it is DNA that acts as a genetic material.
19. Informtion storage should be able to express itself in the form of----- (Mendelian Characters).
20. The distance between two consecutive base pairs is ----- (0.34nm or $0.34 \times 10^{-9}m$).
21. The length of E.coli DNA is ----- (1.36mm).
22. The number of base pairs of E.coli is----- (4×10^6m ($1.36 \times 10^3m / 0.34 \times 10^{-9}$)).
23. DNA is held with some proteins in a region called the ----- (Nucleoid).
24. DNA of prokaryotes is almost circular and lacks chromatin organization, hence termed ----- (Genophore).
25. Chromatin is formed by series of repeating units called----- (Nucleosomes).
26. The four histone proteins are organized to form a unit of eight molecules called----- (Histone Octamere).
27. The negatively charged DNA is wrapped around the positively charged histone octamere to form a structure called----- (Nucleosome).
28. Semi-conservative replication was proposed by----- (Watson and Crick) in 1953.
29. The mode f DNA replication was determined in 1958 by----- (Meselson and Stahl).
30. The heavy DNA could be distinguished from light DNA with a technique called----- (Cesium Chloride(CsCl)) density gradient centrifugation.
31. DNA polymerase I also known as ----- (Kornberg Enzyme).
32. E.coli that has 4.6×10^6bp completes its replication process within----- (38 minutes).
33. Replication begins at all initiation site called the site of ----- (Origin of replication or Ori).

34. The replication is continuous and is known as the----- (Leading Strand) .
35. The replication is discontinuous known as the----- (Lagging strand).
36. The discontinuously synthesized fragments of the lagging strand called the----- (Okazaki fragments) are joined by the enzyme DNA ligase.
37. Y-shaped structure called the----- (Replication fork).
38. Francis Crick proposed the ----- (Central Dogma) in molecular biology.
39. The process of copying genetic information from one strand of DNA into RNA is termed ----- (Transcription).
40. In eukaryotes the promoter has AT rich regions called ----- (TATA box).
41. In prokaryotes this region is called ----- (Pribnow box).
42. The structural gene may be ----- (monocistronic (eukaryotes) or polycistronic (prokaryotes)).
43. In prokaryotes, there are three major types of RNAs-----,-----and----- (mRNA, tRNA, and rRNA).
44. The polymerase binding sites are called ----- (Promoters).
45. The monocistronic structural genes are interrupted coding sequence known as ----- (Exons) and non- coding sequence called ----- (Introns).
46. The introns are removed by a process called ----- (Splicing).
47. hnRNA undergoes additional processing called as ----- (Capping) and ----- (tailing).
48. That mediate transfer of genes between organisms ----- (Horizontal Gene Transfer (HGT)).
49. The specific order of base pairs is called ----- (Genetic code).
50. Marshall Nirenberg, Severo Ochoa Enzyme polynucleotide phosphorylase called ----- (Ochoa's enzyme).
51. ----- (Hargobind Khorana, Francis Crick) and many others have contributed significantly to decipher the genetic code.
52. The genetic codon is a ----- (Tripple code) and 61 codons code for amino acids.
53. 3 codons do not code for any amino acid and function as ----- (Stop codon).
54. The code is always read in a fixed direction i.e. from 5' → 3' direction called ----- (Polarity).
55. Codons are designated as termination codons and also are known as ----- (Non-sense codons).
56. Wobble Hypothesis proposed by ----- (Crick) 1966.
57. The third base of the codon is called ----- (Wobble base).
58. And Wobble base position is called ----- (Wobble position).
59. The two dimensional clover leaf model of tRNA was proposed by ----- (Robert Holley).
60. The secondary structure of tRNA depicted in looks like a ----- (Clover leaf).
61. In actual structure, the tRNA is a compact molecule which looks like an ----- (Inverted I).
62. It is called an ----- (Adapter molecule) this term was postulated by Francis Crick.
63. In addition it also shows a small lump called ----- (Variable loop or Extra arm).
64. The process of addition of amino acid to tRNA is known as ----- (Aminoacylation or charging).
65. The resultant product is called ----- (Aminoacylation – tRNA) charged tRNA.
66. Without aminoacylation tRNA is known as ----- (Uncharged tRNA).
67. The prokaryotic ribosome ----- (70 S).
68. Consists of two subunits the ----- (Larger subunit 50 S) and ----- (Smaller subunit 30 S).
69. The ribosomes of eukaryotes ----- (80 S).

70. Larger consisting of -----and----- (60 S and 40 S) subunits.
71. 'S' denotes the sedimentation coefficient which is expressed as ----- (Svedberg unit).
72. One of the alternative ways of dividing up a sequence of bases in DNA or RNA into codons is called ----- (Reading frame).
73. Beginning with the start codon and which can be translated into a protein is known as an ----- (Open Reading Frame (ORF)).
74. mRNA also have some additional sequence that are not translated and are referred to as ----- (Untranslated Region (UTR)).
75. This ribosome binding site is called the ----- (Shine-Dalgarno sequence or S-D sequence).
76. Steps requires the correct transfer RNA, another GTP and proteins called ----- (Elongation factors).
77. E.coli requires three enzymes -----, ----- and ----- (Permease, β -galactosidase and Transacetylase).
78. ----- and ----- (Jacob and Monod) proposed the classical model of lac operon to explain gene expression and regulation in E.coli.
79. The international human genome project was launched in the year ----- (1990).
80. Human genome is said to have approximately ----- (3×10^9 bp).
81. HGP was closely associated with the rapid development of a new area in biology called ----- (Bioinformatics).
82. Identify all the genes approximately ----- (3000) in human DNA.
83. Bacteria and yeast are two commonly used hosts and these vectors are called as ----- and ----- (BAC-Bacterial Artificial Chromosomes and YAC-Yeast Artificial Chromosome).
84. Some repetitive DNA sequence called ----- (Microsatellites).
85. The latest method of sequencing even longer fragments is by a method called ----- (Shotgun Sequence).
86. An average gene consists of 3000 bases, the largest known human gene being ----- (Dystrophin) with 2.4 million bases.
87. Chromosome 1 has ----- (2968) genes whereas Chromosome 'Y' has ----- (231) gene.
88. ----- (Pharmacogenomics) is the study of how gene affect a person's response to drugs.
89. ----- (Pharmacology) is the science of drugs.
90. ----- (Genomics) is the study of genes and their functions.
91. The DNA fingerprint technique was first developed by ----- (Alec Jeffreys) in 1985.
92. There are ----- (23) pairs of human chromosomes with 1.5 million pairs of genes.
93. These nucleotide sequence are called as ----- (Variable Number Tandem Repeats (VNTR)).
94. DNA fingerprinting involves identifying difference in some specific regions in DNA sequence called ----- (Repetitive DNA).
95. The bulk DNA forms a major peak and the other small peaks are referred to as ----- (Satellite DNA). DNA is classified into many sub categories such as -----, ----- (micro-satellite, mini-satellite), etc.