Subject: Bio302 (Notes)

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1) The term molecular biology was first used in 1945 by who was referring to the study of the chemical and physical structure of biological macromolecules?

a) William Astbury b) Macleod and McCarthy c) Hershey d) Grifith

2) Nucleic acids are or large biomolecules, essential for all known forms of life.?

a) polymer b) trimolecularc) biopolymers, d) all of thses

3) Nucleic acids, which include), are made from monomers known as nucleotides?

a) DNA B) RNA C)BOTH OF THSES D) NONE OF THESE

4) Each nucleotide has three components: , a phosphate group, and a nitrogenous base

A) a 5-carbon sugar B) a 3-carbon sugar C) a 6-carbon sugar D) a 7-carbon sugar

5) Nucleic acids were discovered by Friedrich Miescher BY ?

A) 1860 B) 1867 C) 1868 D) 1869...

6) DNA is one of the major macromolecules that are essential for all known forms of life.?

A) 3 B) 4 C) 5 D) 7

7)DEFINE Nucleic Acids?

ANS : Nucleic acids are biopolymers, or large biomolecules, essential for all known forms of life. Nucleic acids, which include DNA (deoxyribonucleic acid) and RNA (ribonucleic acid), are made from monomers known as nucleotides. Each nucleotide has three components: a 5-carbon sugar, a phosphate group, and a nitrogenous base. If the sugar is deoxyribose, the polymer is DNA. If the sugar is ribose, the polymer is RNA. When all three components are combined, they form a nucleotide. Nucleotides are also known as phosphate nucleotides

8)what is DNA ?

ANS) Deoxyribonucleic acid (DNA) is a nucleic acid containing the genetic instructions used in the development and functioning of all known living organisms. The DNA segments carrying this genetic information are called genes

9) Eukaryotic organisms (animals, plants, fungi, and protists) store most of their DNA inside the and some of their DNA in organelles, such as ?

A) the cell nucleus B) mitochondria C) chloroplasts. D)ALL OF THESE

10) prokaryotes (bacteria and archaea) store their DNA only in the ?

A) the cell nucleus B) mitochondria C) chloroplasts. D) cytoplasm

11) Write the functions Ribonucleic acid (RNA) ?

Ans)Ribonucleic acid (RNA) functions in converting genetic information from genes into the amino acid sequences of proteins. The three universal types of RNA include transfer RNA (tRNA), messenger RNA (mRNA), and ribosomal RNA (rRNA).

12) Write the functions messenger RNA (Mrna?

Ans .Messenger RNA acts to carry genetic sequence information between DNA and ribosomes, directing protein synthesis.

13) Write the functions ribosomal RNA (rRNA).?

Ans; .Ribosomal RNA is a major component of the ribosome, and catalyzes peptide bond formation.

14) Write the functions transfer RNA (tRNA ?

Ans; . Transfer RNA serves as the carrier molecule for amino acids to be used in protein synthesis, and is responsible for decoding the mRNA. In addition, many other classes of RNA are now known.

15)IN DNA The nucleotides are joined together by ?

A) covalent bonds B) HYDROGEB bond c) phosphate bond d) all of these

16) define Nucleoside & Nucleotide?

Ans; A nucleoside consists of a nitrogenous base covalently attached to a sugar (ribose or deoxyribose) but without the phosphate group. A nucleotide consists of a nitrogenous base, a sugar (ribose or deoxyribose) and one to three phosphate groups.

17) A deoxyribonucleotide is the monomer, or single unit, of DNA, or deoxyribonucleic acid. Each deoxyribonucleotide comprises three parts: ?

a) nitrogenous base b) deoxyribose sugar c) phosphate group. D) all of these

18) Chargaff Rules for DNA Structure?

Ans; **Chargaff's rules**. **Chargaff's rules** state that **DNA** from any cell of all organisms should have a 1:1 ratio (base Pair **Rule**) of pyrimidine and purine bases and, more specifically, that the amount of guanine should be equal to cytosine and the amount of adenine should be equal to thymine.

19)write about chemical RNA Structure?

Ans; Chemical Composition of RNA

Usually ribonucleic acid (RNA) is single stranded and made up of long, unbranched polynucleotide chain. The polynucleotide chain is formed by joining of ribonucleotides, with the help of 3‘ – 5‘ phosphodiester bonds in the same fashion as in case of DNA. But RNA is more stable than DNA because of intermolecular pairing.

Ribonucleotides = Pentose sugar (ribose) + N-base + phosphate group
Nitrogen bases are of two types

Purines Adenine (A) Guanine (G)

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Pyrimidines Cytosine (C) Uracil (U)

Many RNAs possess number of minor bases in addition to above four bases, so there are unusual nucleotides like pseudouridine, inosine, dihydroxyuridine etc.

20)write the types of Types of RNAs?

Ans; There are actually several types of ribonucleic acids or RNAs, but mainly three types of Ribonucleic acids (RNAs) present in the cells of living organisms.

1. Messenger RNA (mRNA) 2. Transfer RNA (tRNA) 3. Ribosomal RNA (rRNA)

21) rRNA is a predominant material in the ribosomes constituting about of its weight?

a) 70% b)80 % c) 90% d) 60%

22)which is The process of forming mRNA on a DNA template is known as ?

a) transcription b)translation c)none of these d|)both of thses

23) Each nucleotide in RNA contains a ribose sugar, with carbons numbered ?

a) 1' through 3' b) 1' through 5' c) 3' through 5' d) 5' through 3;

24)whic is rRNA constitutes about the of the whole RNA present in an eukaryotic cell?

a) 70% b)80 % c) 90% d) 60%

25)**. RNA is the genetic material in**

a) Viruses only

b) In some viruses and some prokaryotes
c) In some viruses and some prokaryotes and rarely in eukaryotes
d) Only in some viruses

26)The sugar in RNA is
a) Deoxyribose
b) Ribose
c) Hexose
d) Fructose

27)Nucleotides in RNA are joined by
a) 3'5' phosphodiester bond
b) 3'4' phosphodiester bond
c) 3'2' phosphodiester bond
d) 3'6' phosphodiester bond

28) Thymine in DNA is replaced by
a) Guanine in RNA
b) Adenine in RNA
c) Cytosine in RNA
d) Uracil in RNA

29)The most abundant type of RNA in the cell is
a) rRNA
b) mRNA
c) tRNA
d) RNA

30) Which of the following RNA serves as adaptor molecule during protein synthesis
a) rRNA
b) mRNA
c) tRNA
d) hnRNA

31). rRNA is synthesised in
a) nucleus
b) Cytoplasm
c) RER
d) Nucleolus

32)cDNA is
a) complementary to mRNA
b) complementary to rRNA

c) complementary to tRNA
d) complementary to hnRNA

33) Amino acids are attached to the
a) acceptor arm of tRNA
b) anti-codon arm of tRNA
c) codon arm of tRNA
d) none of these

34). Ribozymes are
a) enzymes with catalytic activity
b) RNAs with catalytic activity
c) proteins with catalytic activity
d) nucleic acids with catalytic activity

35). RNA is primarily seen in
a) nucleus
b) Cytoplasm
c) RER
d) SER

36) Ribose sugar in RNA is
a) D-ribose
b) L-ribose
c) Both L and D form
d) None of these

37)Which of the virus has double stranded RNA as genetic material?
a) Tobacco mosaic virus
b) Influenza virus
c) Rous Sarcoma virus
d) Reoviruses

38). Ribosomes are composed of
a) DNA and RNA
b) RNA and proteins
c) DNA and Proteins
d) RNA only

39)The difference between thymine and uracil is:

A) one methylene group on the pyrimidine ring.
B) one methyl group on the pyrimidine ring.
C) one hydroxyl group on the ribose ring.
D) one amine group on the pyrimidine ring.
40) The difference between a ribonucleotide and a deoxyribonucleotide is:

A) a deoxyribonucleotide has an —H instead of an —OH at C-2.
B) adeoxyribonucleotide has an —H instead of an —OH at C-3.
C) aribonucleotide has an extra —OH at C-4.
D) aribonucleotide has more structural flexibility than deoxyribonucleotide.
41) Which one of the following is true of the pentoses found in nucleic acids?

A) C-5 and C-1 of the pentose are joined to phosphate groups.
B) The pentoses are in a planar configuration.
C) The bond that joins nitrogenous bases to pentoses is an O-glycosidic bond.
D) The pentoses are always in the β-furanose forms.
41) n the Watson-Crick model for the DNA double helix (B form) the A-T and G-C base pairs share which one of the following properties?

A) The distance between the two glycosidic (base-sugar) bonds is the same in both base pairs, within a few tenths of an angstrom.
B) The molecular weights of the two base pairs are identical.
C) The number of hydrogen bonds formed between the two bases of the base pair is the same.
D) The plane of neither base pair is perpendicular to the axis of the helix.
42) The experiment of Avery, MacLeod, and McCarty in which nonvirulent bacteria were made virulent by transformation was significant because it showed that:

A) bacteria can undergo transformation.
B) genes are composed of DNA only.
C) mice are more susceptible to pneumonia than are humans.
D) pneumonia can be cured by transformation.

43) Chargaff's rules state that in typical DNA:

A) A = G.
B) A = C.
C) A + G = T + C.

D) A + T = G + C.

44) Based on Chargaff's rules, which of the following are possible base compositions for double-stranded DNA?

%A %G %C %T %U
A) 5 45 45 5 0
B) 20 20 20 20 20
C) 35 15 35 15 0
D) All of the above

45) In the Watson-Crick structure of DNA, the:

A) absence of 2'-hydroxyl groups allows bases to lie perpendicular to the helical axis.
B) adenine content of one strand must equal the thymine content of the same strand.
C) nucleotides are arranged in the A-form.
D) purine content (fraction of bases that are purines) must be the same in both strands.

46) n the Watson-Crick model of DNA structure:

A) both strands run in the same direction, 3' → 5'; they are parallel.
B) phosphate groups project toward the middle of the helix, where they are protected from interaction with water.
C) the distance between the sugar backbone of the two strands is just large enough to accommodate either two purines or two pyrimidines.
D) the distance between two adjacent bases in one strand is about 3.4 Å.

47) Which of the following is not true of all naturally occurring DNA?

A) Deoxyribose units are connected by 3',5'-phosphodiester bonds.
B) The amount of A always equals the amount of T.
C) The ratio A+T/G+C is constant for all natural DNAs.
D) The two complementary strands are antiparallel.

48) n the Watson-Crick model of DNA structure (now called B-form DNA):
A) A-T pairs share three hydrogen bonds.
B) G-C pairs share two hydrogen bonds.
C) the 5' ends of both strands are at one end of the helix.
D) the bases occupy the interior of the helix.

49) The double helix of DNA in the B-form is stabilized by:
A) covalent bonds between the 3' end of one strand and the 5' end of the other.
B) hydrogen bonding between the phosphate groups of two side-by-side strands.
C) hydrogen bonds between the riboses of each strand.
D) nonspecific base-stacking interaction between two adjacent bases in the same strand

50) For the helix in double-stranded B-form DNA, the majority of the stability can be attributed to:

A) base-pairing interactions via H-bonds.
B) interactions along the phosphate backbone.
C) base-stacking interactions in van-der-Waals interactions.
D) covalent bonds between adjacent bases in one strand..

51)Which of the following is a palindromic sequence?

A) AGGTCC
TCCAGG
B) CCTTCC
GCAAGG

C) GAATCC
CTTAGG
D) GGATCC
CCTAGG

52) Triple-helical DNA structures can result from Hoogsteen (non Watson-Crick) interactions. These interactions are primarily:

A) covalent bonds involving deoxyribose.
B) Covalent bonds involving the bases.
C) hydrogen bonds involving deoxyribose.
D) hydrogen bonds involving the bases.

53)Which of the following are possible base compositions for single-stranded RNA?

%A %G %C %T %U
A) 5 45 45 0 5
B) 25 25 25 0 25
C) 35 10 30 0 25
D) All of the above

54)In living cells, nucleotides and their derivatives can serve as:

A) carriers of metabolic energy.
B) enzyme cofactors. .
c) precursors for nucleic acid synthesis.
d) all of the above.

55) What did Griffith determine with his 1928 experiment?

- A. that somehow, R cells were transformed into S cells
- B. that certain bacteria are pathogenic while others are not
- C. mice are susceptible to only some kinds of bacteria
- D. that the capsule of bacterial cells is not harmed by heat

56)What do we now know was the transforming portion of the bacterial cells?

- A. protein
- B. DNA
- C. polysaccharide
- D. lipids

57) Frederick Griffith was a _____.
a)French scientist

b) American scholar

c) British bacteriologist
d) German geneticist
58)rederick Griffith was trying to find a cure for what disease when he performed his famous bacterial experiment?
a) Pneumonia
b) The flu
c) A head cold
d) Cancer
59) Griffith's experiment illustrated a principle where a bacterial cell was changed from one form into another. This process is called _____.

a) Transcription

b) Translation

c) Twitching

d) Transformation

60)Frederick Griffith was studying the way in which certain types of _____ cause _____?without option

Ans;bacteria, pneumonia

61) What is the codon that serves as the "start" codon for protein synthesis?

a)AUG

B)GUA

C)UAC

D)UGA

62) **The repeating units of proteins are**
a) glucose units

b) amino acids

c) fatty acids

d) peptides

62. Amino acids are joined by
a) peptide bond

b) hydrogen bond

c) ionic bond

d) glycosidic bond

63. The primary structure of protein represents
a) Linear sequence of amino acids joined by peptide bond

b) 3-dimensional structure of protein

c) helical structure of protein
d) sub unit structure of protein

64. Peptide bond is
a) rigid with partial double bond character

b) planar, covalent

c) covalent

d) all of the above

65. Enzymes are

a) proteins

b) carbohydrates

c) nucleic acids

d) DNA molecule

66. The first protein sequenced by Frederick Sanger is

a) Haemoglobin

b) myoglobin

c) insulin

d) myosin

67. A dipeptide has

a) 2 amino acids and 1 peptide bond

b) 2 amino acids and 2 peptide bonds

c) 2 amino acids and 3 peptide bonds

d)2 amino acids and 4 peptide bonds

68. The most common secondary structure is

a) α-helix

b) β-pleated sheet

c) β-pleated sheet

69. Myoglobin is a

a) protein with primary structure

b) protein with secondary structure

c) protein with tertiary structure

d) protein with quaternery structure

70. Fibrous protein such as silk fibroin consists of polypeptide chains arranged in

a) α-helix

b) β-pleated sheet

c) β-helix

d) none of these

71. α-helix has

a) 3.4 amino acid residues/turn

b) 3.6 amino acid residues/turn

c) 3.8 amino acid residues/turn

d) 3.0 amino acid residues/turn

72. Tertiary structure is maintained by

a) peptide bond

b) hydrogen bond

c) di-sulphide bond

d) all of the above

73. Haemoglobin has

a) primary structure

b) secondary structure

c) tertiary structure

d) quaternery structure

74. Disulphide bonds are formed between

a) cysteine residues that are close together

c) proline residues that are close together

d) histidine residues that are close together

75. The 3-D structure of protein can be determined by

a) Nuclear magnetic resonance

b) X-ray crystallography

c) both a and b

d) Spectroscopy

76) The percentage of nucleic acid in relation to protein is about 1% for the influenza virus and about _____ for some bacteriophages.

a)50%^

b)60%^

c)70%

d)80%

77) E. coli's chromosome consists of approx. _____ nucleotide pairs.

a)5 million

b)6 million

c)4 million

d)8 million

78)enetic material of bacteria is composed of single-stranded

A. Linear DNA
B. Ladder like DNA
C. Coiled DNA

D. Circular DNA

79)Herpesvirus are noted to cause

A. Latent infection
B. Cancer
C. Scrapie
D. Scratches

80) Klebsilla, E.coli, Enterobacters and pseudomonas are causative agent for

A. Cancer
B. Urinary tract infections
C. Anthrax
D. Peritonitis

81)The bacterial chromosome is a very long (up to _____?

a) 1mm

b)2mm

c)3mm

d)4mm

82)Specific proteins interact with the bacterial DNA to form a highly condensed nucleoprotein complex called the _____?

a) heredity

b) chromosome

c) nucleoid.

d)gene

83) When DNA helix has normal number of base pairs per helical turn than it is in

A. coiled state
B. supercoiled state
C. normal state
D. elongated stat

84) Tightly packed form of DNA is called

A. supercoiling
B. compressed state
C. Euchromatin
D. heterochromati

85) Which of the following histones bind to linker DNA?
a) H1
b) H2A
c) H2B
d) H3

86) Which of the following has beads on a string structure?
a) Chromosomes
b) Chromatin
c) Nucleosomes
d) Heterochromatin

87) Which of the following histones shows more sequence similarity among eukaryotic species?
a) H1
b) H2A
c) H2B
d) H3

88) **Nuclear gene expression can be regulated by**

a)Histone methylation

B)Histone acetylation

C)Histone remodeling

D)Histone re-arrangement

89) **DNA-binding proteins**

A)Are usually monomeric

B)nteract with DNA by ionic bonds

C)contain DNA-binding motifs

D)Can regulate gene expression

90) **Splicing**

A)Removes introns

B)Removes exons

C)Always requires spliceosomes

D)Occurs primarily in the cytoplasm

91) **RNAs perform their function in the:**

A) Nucleus

B) Rough endoplasmic reticulum

C) Smooth endoplasmic reticulum

D)ALL of these

92) . Negatively charged phosphate groups in the DNA backbone must be neutralized in order for folding of DNA to occur. In bacterial DNA, this charge neutralization is carried out by small positively charged molecules called polyamines. What proteins carry out this same function in eukaryotic cells?

A. Transcription factors

B. High mobility group proteins (HMG-1)

C. Histones

D. Scaffold proteins

93. There are five major types of histones in eukaryotic cells. One of these is not part of the structure of nucleosomes and is thought to participate in forming the 30-nm condensed chromatin fiber. Which histone is this?

A. H1

B. H2A and B

C. H3

D. H4

94) TATA box regulatory element?

A. Plasmids 1 and 2

B. Plasmid 3

C. Plasmid 4

D. Plasmid 5

95) the lac operator

17. An enhancer element shows all of the following properties except

A. acts as a binding site for transcription factors

B. acts as a binding site for RNA polymerase

C. is functional when located upstream or downstream of the transcription initiation site

D. is functional when located in an intron

96) 6. The mRNA produced from the lactose operon would not hybridize to

A. the lacY gene

B. the lacZ gene

C. the lac promoter

D. the lac operator

97) 5. The DNA that encodes protein or RNA accounts for approximately what percentage of the total DNA in eukaryotic cells?

A. 0.01 percent

B. 0.1 percent

C. 5 percent

D. 50 percent

98) Select the response that correctly describes a property of an operon.

A. consist of multiple transcription units

B. are a cluster of genes that are transcribed into a single mRNA

C. are common in eukaryotes

D. are transcribed as monocistronic mRNAs

99) Which of the following proteins is encoded in the LacI gene?

A. Repressor protein

B. Promoter

C. b-galactosidase

D. Lactose permease

100) Select the answer that describes a region of DNA in which genes are likely to be located.

A. DNA loops in heterochromatin

B. DNA loops in euchromatin

C. Scaffold or matrix attachment regions in heterochromatin

D. Scaffold or matrix attachment regions in euchromatin

101). Select the answer that names the three functional elements that are required for replication and stable inheritance of chromosomes.

A. Origins for initiation of DNA replication, centromeres, telomeres

B. Scaffold attachment regions, origins for initiation of DNA replication, centromeres

C. Nucleosomes, origins for initiation of DNA replication, centromeres

D. Nucleosomes, centromeres, telomeres

102). The classic experiments showing that this step in gene expression is regulated were done by Jacob and Monod in the 1950's. Which step in gene expression was it?

A. Replication

B. Translation

C. Reverse transcription

D. Transcription

103). Jacob and Monod deduced that protein-binding regulatory sequences exist in DNA segments associated with genes. Which response below correctly indicates the type(s) of cells to which this principle applies?

A. Bacteria only

B. Animal cells only

C. Yeast cells only

D. Bacterial, animal and yeast cells

104) The uncondensed chromatin resembles beads on a string when viewed under the electron microscope.Each bead is a nucleoprotein complex called ?

A) nucleosome

B)nucleic acid

C)nucleus

d)all of these

105) A nucleosome is a basic unit of DNA packaging in eukaryotes, consisting of a segment of DNA wound in sequence around eight histone protein cores.[2

A)eukaryotes

B)Prokaryotes

C)Both of these

D)None of these

106)

The accepted hypothesis for DNA replication is

A. conservative theory

B. dispersive theory

C. semi-conservative theory

D. evolutionary theory

107)

The enzyme responsible for the removal of supercoiling in replicating DNA ahead of the replication fork is
a) Topoisomerase
b) Primase
c) DNA polymerase
d) Helicase

108) The type of topoisomerases which generally relaxes DNA by removing negative supercoiling is
a) Type I
b) Type II
c) Type III
d) Type IV

109)are enzymes that regulate the overwinding or underwinding of DNA?without option

Ans;)Topoisomerases

110) . Who of the following was not one of the scientists explaining the replicon model?
a) Francois Jacob
b) Sydney Brenner
c) Jacques Cuzin
d) Arthur Kornberg

111) The replicon model was first explained in the year _____
a) 1950
b) 1957
c) 1963
d) 1968

112) The eukaryotic chromosome has a single replicon.
a) True
b) False

113) The replicon model comprises of an initiator and _____
a) Replicator
b) Origin of replication

c) Dna A protein
d) AT rich DN

114) Replicator is the synonym for origin of replication.
a) True
b) False

115\)The initiator protein binds to a segment _____ of the replicator sequence.
a) Upstream
b) Downstream
c) At the end
d) Within

116) . Assembly of how many proteins make up the origin replication complex (ORC) in eukaryotes?
a) 2
b) 4
c) 6
d) 8

117) or vertebrates, sequence of nucleotides in telomeres is

A. GGGTAA
B. AAAGTT
C. TTTAGG
D. TTAGGG

118)

Which of the following(s) is/are steps in excision repair mechanisms?

A. Excision

B. Incision

C. Ligation

D. All of these

119)how many parts in which Ultraviolet light is divided ?

Ans; Ultraviolet light is divided into three bands:

- UV –A (321-400nm)
- UV –B (296-320nm)

UV –C (100-295nm

120)About ——— of the DNA damage caused by these radiations is due to indirect effects, primarily due to transfer of photons to water.

A)65%

B)75%

C)85%

D)95%

121)WRITEThe name ofE-coli mismatch protein?

Ans;three E. coli proteins viz., MutS, MutL, and MutH

The process of repair begins when MutS (a homodimer or homotatramer) binds to the mismatch. MutS recruits MutL (a homodimer) in an ATP-dependant fashion. Then the MutS□MutL complex activates MutH, which makes an incision at the nearest unmethylated GATC site, either 5‘ or 3‘ to the mismatch, in the newly synthesized strand.

Subjective

1)Mathew Meselson and Franklin Sthal proved that?

Ans;DNA replicates in a semiconservative
manner.

1;he significance of the Griffith, Avery, and Hershey-Chase experiments was that they demonstrated that ?

Ans;DNA was the molecule of heredity.

2)Which of the following statements about DNA structure is true?
Ans. The nucleic acid strands in a DNA molecule are oriented antiparallel to each other, meaning they run in opposite directions.B. Hydrogen bonds formed between the sugarphosphate backbones of the two DNA chains help o stabilize DNA structure.C. Nucleic acids are formed through phosphodiester bonds that link nucleosides together.D. The pentose sugar in DNA is ribose.

3)What results did Avery, McLeod, and McCarty obtain in their experiments with virulent bacteria?
Ans; DNase destroyed the transforming activity.

4)Identify three possible components of a DNA nucleotide
Ans;deoxyribose, phosphate group, thymine

5);Which of the following outcomes would be most likely if the Hershey-Chase experiments were repeated without the step involving the blender?
Ans; Both preparations of infected bacteria would exhibit radioactivity

6;In 1928, Frederick Griffith established that _____. ?
Ans;heat-killed bacteria harbor the constituent(s) necessary to convey genetic properties to living bacteria

7) To be certain that the extract prepared from virulent cells still contained the transforming principle that was present prior to lysis, Avery _____.?
Ans; incubated nonvirulent cells with the complete extract

8) If Avery had observed transformation using only the extracts containing degraded DNA, degraded RNA, and degraded protein, but

NOT the extract containing degraded polysaccharides, he would have concluded that _____?
Ans;polysaccharides are the genetic material

9)The Hershey and Chase experiments involved the preparation of two different types of radioactively labeled phage. Which of the following best explains why two preparations were required?
Ans; It was necessary that each of the two phage components, DNA and protein, be identifiable upon recovery at the end of the experiment

10)how would Hershey and Chase learn whether genes were made of protein or DNA?
Ans; Grew viruses in cultures containing radioactive isotopes of phosphorus - 32 (32P) and sulfer -35(35S). Proteins contain almost no phosphorus and DNA contains almost no sulfur

11; What is the function of the TATA box?

Ans;helps position RNA polymerase by marking a point just before the point at which transcription begins.

12: What is an anticodon?

Ans; the three bases on the tRNAmolecule;complementary to one of the mRNA codons

13) Where does translation occur?

Ans; cytoplasm
14)write the Roles of nucleosomes?

Ans; Fold enormous lengths of DNA into the tiny space available in the cell nucleus 2Regulate how genes are "read" to make proteins.

15)NAME FIVE Histone protein?

Ans; These histones fall in five major classes i.e., H1, H2A, H2B, H3 and H4.A typical human cell contains about 60 millioncopies of each kind of histone.

Q16) Types of RNAs

Ans;There are actually several types of ribonucleic acids or RNAs, but mainly three types of Ribonucleic acids (RNAs) present in the cells of living organisms.

1. Messenger RNA (mRNA)

2. Transfer RNA (tRNA)

3. Ribosomal RNA (rRNA)

17)Define Peptide Bond?

Ans;In a protein molecule, each amino acid residue is joined to its neighbour by a specific type of covalent bond which is called Peptide Bond.

18)write a short note note on Zigzag Model>?

Ans;Zigzag Model Solenoid Model Zigzag model predicts that the linker DNA forms a straight path between successive nucleosomes.The nucleosomes lie on opposite sides of the fiber.

The solenoid model predicts that the nucleosome chain forms a helical structure with about 6 nucleosomes per turn.Linker DNA is bent to connect neighbouring nucleosomes. Some of the reconstitution experiments appear to support Zigzag models while some others support Solenoid model.

19) What do you mean by DNA replication?

Ans; The process of making an identical copy of a section of duplex (double-stranded)**DNA**, using existing **DNA** as a template for the synthesis of new **DNA** strands. In humans and other eukaryotes, **replication** occurs in the cell nucleus.

20)define conservatively Semiconservative and dispersive replicatioon in DNA ?

Ans; **semiconservative replication** The generally accepted method of **DNA replication**, in which the two strands of the **DNA** helix separate and free nucleotides pair with the exposed bases on the single chains to form two new **DNA** molecules, each containing one original and one newly synthesized strand of **DNA**.

Conservatively replication;

a hypothetic form of **replication** in which a double-stranded DNA (dsDNA) produces two daughter dsDNAs, one of which consists of the two original strands whereas the other daughter DNA consists of two newly synthesized chains.

Dispersive replication would produce two copies of the DNA, both containing distinct regions of DNA composed of either both original strands or both new strands