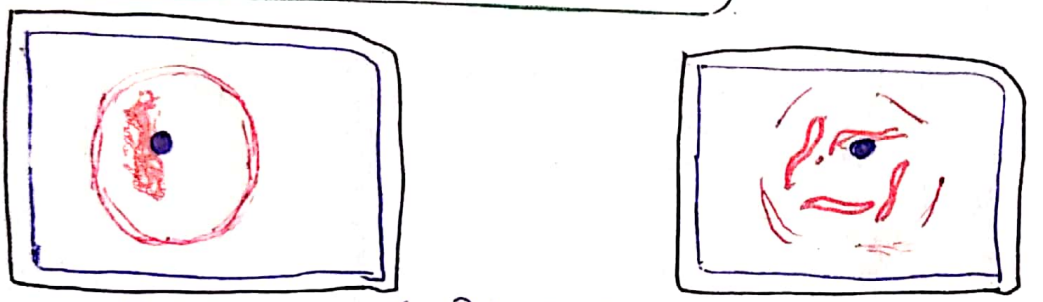
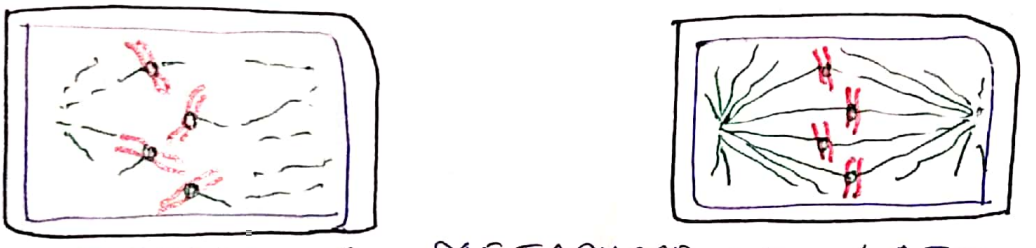
CELL DIVISSION/REPRODULTION

CELL-CYCLE — MITOSIS.

(DIAGRAMATIC)

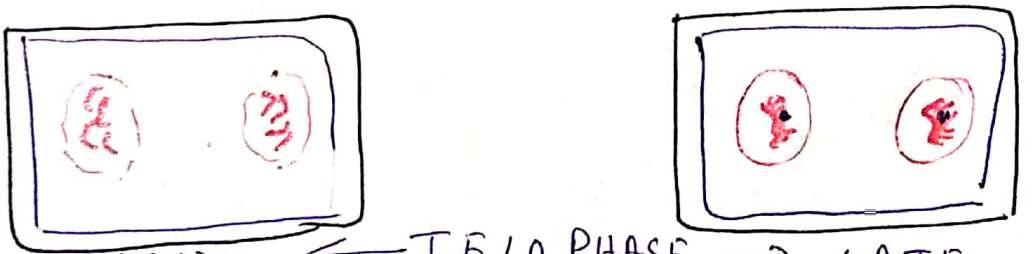


EARLY ← PROPHASE → LATE

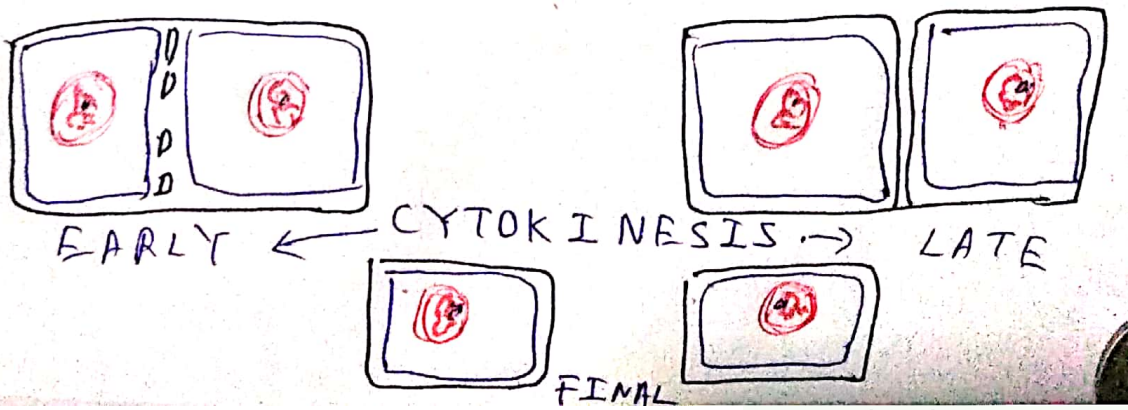


EARLY ← METAPHASE → LATE

EARLY ← ANAPHASE → LATE



EARLY. ← TELO PHASE → LATE

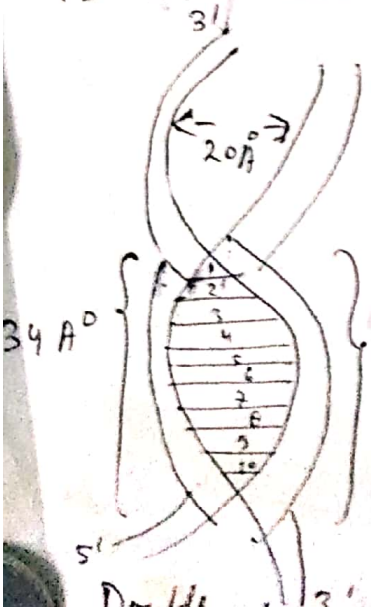


EARLY ← CYTOKINESIS → LATE

FINAL

8. **DNA:**

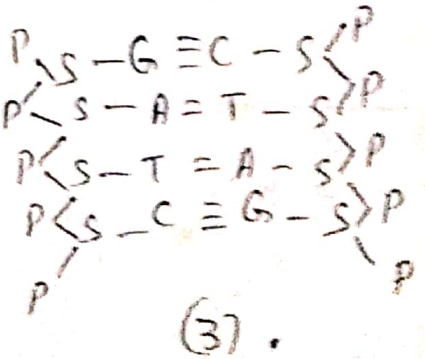
Ans:- 1. Deoxy Ribose Nucleic Acid is a kind of nucleic acid.
2. It was discovered by Meischer, who called it Nuclein.
3. Altman said nuclein as Nucleic acid.
4. J.D. Watson & F.H.C. Crick proposed double helix model of DNA, which is widely accepted.
5. It is a polymer of nucleotide as called polynucleotide.
6. Nucleotide = Nucleoside + Phosphate.
7. Nucleoside = Nitrogenous Base + Sugar
8. The two nucleotide chains are antiparallel to each other.
9. The nitrogenous bases are of two types
   (i) Purines: Adenine and Guanine
   (ii) Pyrimidines: Thymine and Cytosine.
10. Here Adenine can pair with Thymine & Guanine with Cytosine.
11. The diameter of the double helix is 20 A°,
12. One complete pitch is of 34 A°. and with ten (10) base pairs, hence there is a 3.4 A° distance is between two base pairs
13. There are various forms of DNA, as B-DNA, A-DNA, Z-DNA etc.
14. It is found in cytoplasm, chloroplast, mitochondria & nucleus.
15. It is considered as Genetic material.



(1)

Double helical structure of DNA

(2)



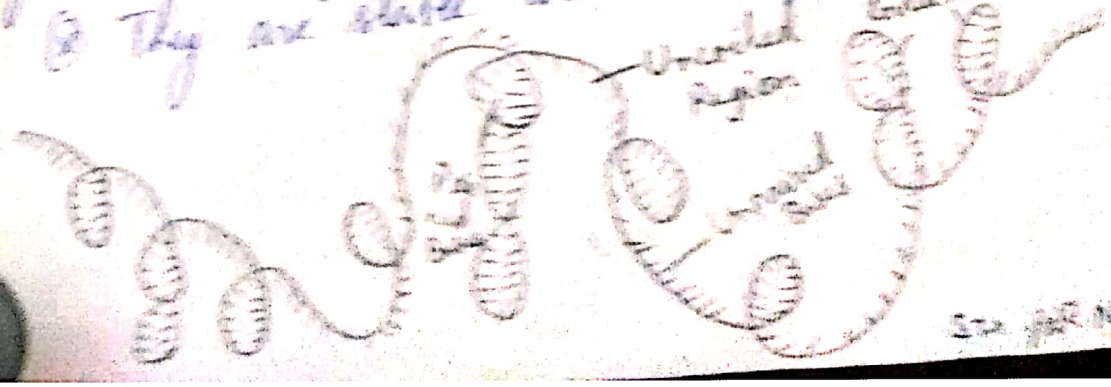
(3).

RIBOSOMAL RNA (rRNA)

1. They are present in ribosomes.
2. They are about 80% of the total RNA of a cell.
3. They are formed from only a small section of the DNA molecule, hence they lack definite base relationship between rRNA and DNA as a whole.
4. But the base sequence is complementary to the region of DNA where it is transcribed.
5. In prokaryotes a part of DNA, known as nucleoid DNA from rRNA.
6. In eukaryotes they are formed on the nucleolus. The nucleolar organizer contains ribosomal DNA. They transcribe 4 ribosomal RNA of 45S. These passes through a series of intermediate steps and give rise to rRNA of 28S.

Structure: ① Single strand twisted upon itself in some parts forming helical regions with complementary base pairing joined by hydrogen bonds. The unfolded portions have no complements.

Stability: ① In Living they get unfold, but refold upon cooling.
② They are stable at least for two generations.



Str. of rRNA (Schematic)

Types of r-RNA: On the basis of sedimentation and molecular weight they are of three (03) types.

S.No	Type of r-RNA with Molecular weight	~~Molecular Weight~~ Number of nucleotides	Sedimentation coefficient Type
1.	Low molecular weight RNA ~ 40,000	~ 120	5-S
2.	High molecular weight RNAs but less than 1 million.	1,200 - 2,500	12 - 18-S
3.	High molecular weight RNAs & more than 1 million	3,000 - 5,500	21 - 29S

S.No	Type of Ribosome	Present in	Small sub unit		Large Sub unit	
			Size	RNAs	Size	RNAs
1.	80S	Vertebrates	40S	18S	60S	5S + 5.8S + 28-29S
2.	80S	Invertebrates and Plants	40S	16-18S	60S	5S + 5.8S + 25S
3.	70S	Prokaryotes	30S	16S	50S	5S + 23S
4.	55S (54-61S)	Mitochondria	~~40S~~ 30S	12-13S	40S	5S + 16-17S