

**Practical Cytogenetics**

**Question Bank**

**2023-2024**

**Abdullah Abubakir Shareef**

**Abdullah.Shareef@su.edu.krd**

Salahaddin University

Practical cytogenetics exam

Name:

College of science

Group:

Biology department

---

**Q1/ Define the following terms:**

**10pts**

- A) ISCN 2005
- B) Karyotyping

**Q2) Explain the following questions briefly (Answer only 7 questions)**

**35pts**

- A) Different type of cells has different rate of division. Give examples
- B) Differences between Anaphase I & Anaphase II
- C) Why use onion roots for viewing mitosis?
- D) In a karyogram, on which basis chromosomes are classified?
- E) Dropping of bone marrow sample on a slide above 3 feet during chromosome preparation.
- F) Using Hypotonic solutions during chromosome analysis.
- G) Injection Colchicine in to mouse during bone marrow aspiration and its mechanism of action.
- H) Using of Trypsin in G banding technique.

**Q3) Compare G-Banding techniques and R-Banding technique in details.**

**20pts**

**Q4) What are the Techniques that Stain Selective Chromosome Regions, describe one of them briefly.**

**8pts**

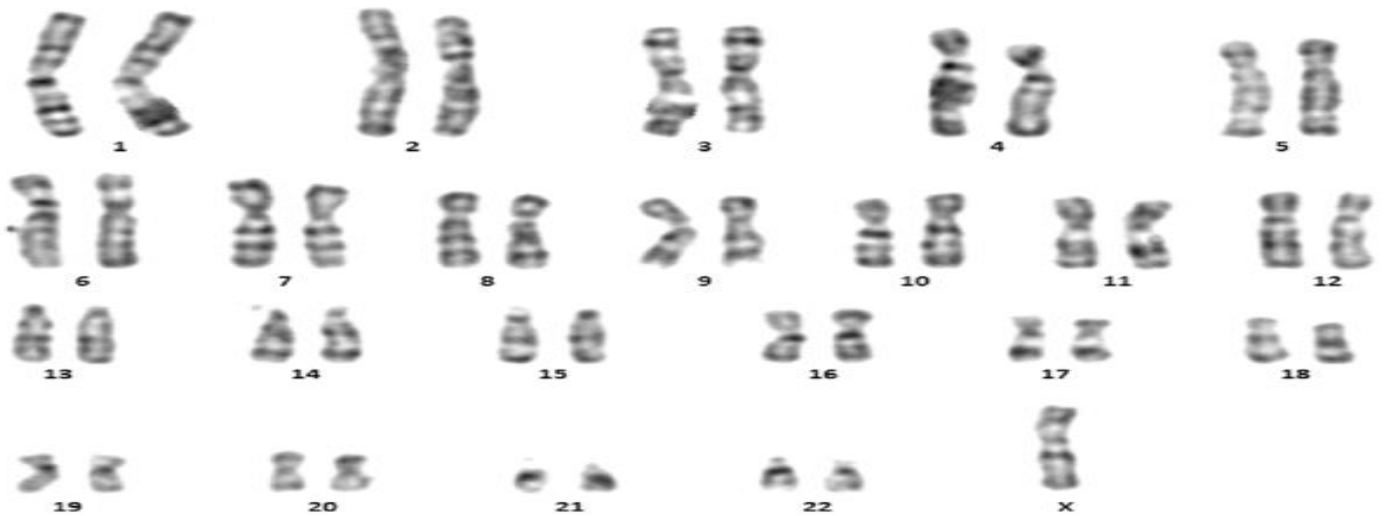
Q5) Describe the following karyograms:

15pts

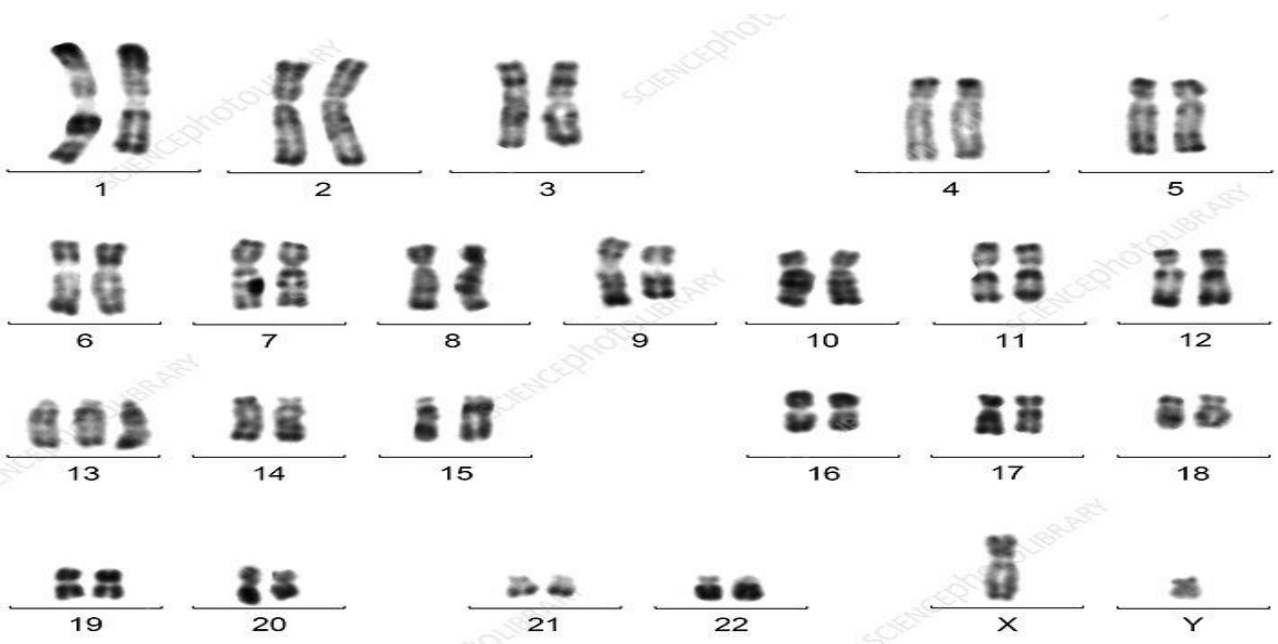
A)



B)



C)



**Q1) Explain the following.**

**20 pts**

1. Cells divide at different rate. For example, Skin cells divide every 2 weeks while liver cells divide between 300-500 days.
2. External factors are important for regulating cell cycle like include physical and chemical signals. Give an example for Physical factors.
3. What are the criteria's that chromosomes are classified in to 7 groups starting from A to G.
4. Purpose of Using colchicine and Hypotonic solutions during chromosome preparation.
5. What is Whole chromosome probe?

**Q2) Compare between the following:**

A. G banding VS R Banding including all details.

**15pts**

B. Homologous chromosomes VS Chromatids

**5pts**

**Q3) Write the principle and advantage of FISH Technique.**

**10pts**

**Q4) What are the Techniques that Stain Selective Chromosome Regions, describe one of them briefly.**

**5pts**

Q5) Write the locus of each gene on the following chromosomes.

10pts

A) Growth Hormone Gene  
Factor gene



Chromosome Number is 17

B) Epidermal Growth

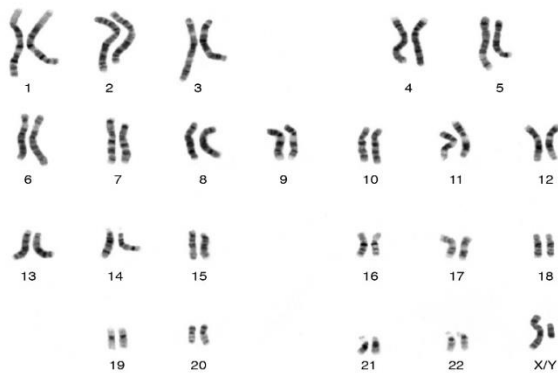


Chromosome Number is 4

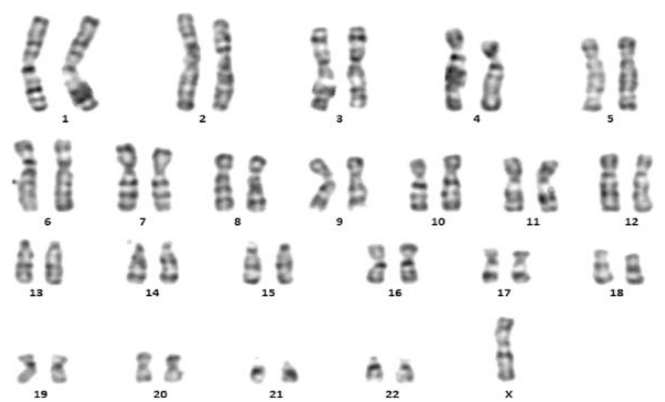
Q6) Write the karyotypic description of the following karyograms:

15pts

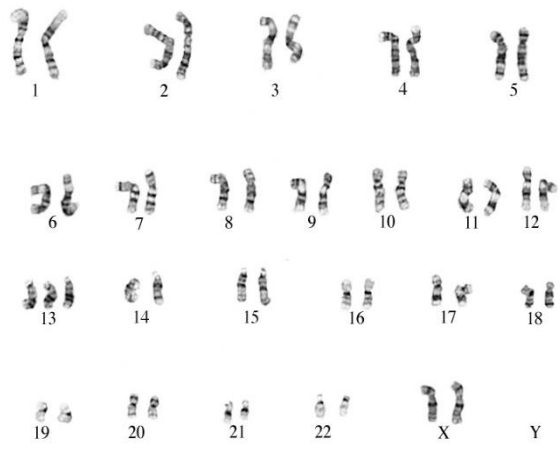
A)



B)



C)



D)



E)

