

1/ Choose the best answer: (5 M)

1. Cri-du-chat includes
 - a. Deletion in chromosome 5
 - b. Cat voice
 - c. defect in voice box
 - d. all of the above
2. The syndrome which has a karyotype of 47,XXY is:
 - a. Turner syndrome
 - b. Klinefelter
 - c. autism
 - d. none of the above
3. The distal end of Y-chromosome is:
 - a. Specifically inactivated
 - b. euchromatin
 - c. constitutive heterochromatin
 - d. Both A and B

Q2/ Give the reason(s) for the following: (4 M)

1. The consequences of a chromosomal aberrations depend on the genes that are affected and the type of cell.
2. Maternal age lead to increase chromosomal abnormalities especially trisomy (Down syndrome).

Q3/ Mark each sentence as True or False and re-correct the false one if there is any. (16 M)

1. Chromosomes were at the beginning known as “transitory cytoblasts.”
2. Gene regulations in prokaryotes are more complicated than in eukaryotes.
3. Population genetics deals with group heredity of a trait which is controlled by one gene.
4. Paternal age doesn't have a significant effect on trisomy production, because sperms are generated once through the life of the male.

Q4/ A: Compare between Partial trisomy and Trisomy: (4 M)

B: Define THREE of the following: (6 M)

Isochromosome, Submetacentric chromosome, Cytogenetics, Secondary constriction.

Q5/ Choose the best answer: (6 M)

4. Cri-du-chat includes
 - c. Deletion in chromosome 5
 - d. Cat voice
 - c. defect in voice box
 - d. all of the above
5. A deletion in one allele of a homozygous wild-type may give:
 - c. Mutant phenotype
 - d. No human being can exist with a deletion
 - c. No effect
 - d. Normal phenotype
6. Barr body is an example of :
 - c. X-chromosome inactivation
 - c. permanently silenced

d. X-chromosome deletion

d. euchromatin

7. is not affected by environmental factors:

a. Sickle cell anemia

c. Somatic mutation

b. Law of segregation

d. Both A and C

8. is an example for Robertsonian translocation of a chromosome.

a. Down syndrome

c. Chronic myelogenous leukemia (CML)

b. Mosaic down syndrome

d. None of the above.

9. Turner syndrome is characterized by all mentioned below except for one:

a. 45,XO

c. no Barr body

b. 45 autosome chromosomes

d. sex chromosome

Q6/ Give the reason(s) for the following: (12 M)

3. Chromosomal duplications do not produce drastic effects in term of phenotype and survival.

4. The consequences of a chromosomal aberrations depend on the genes that are affected and the type of cell.

5. Studying cytogenetics by specialists is considered of a great value.

Q7/ Mark each sentence as True or False and re-correct the false one if there is any. (7 M)

5. Chromosomal translocations are same as chromosomal transposition.

6. Gene regulations in prokaryotes are more complicated than in eukaryotes.

7. Genetic or inheritance is considered as a new field of science.

8. A monocentric chromosome is same as a chromosome with one primary constriction.

Q8/ A: Compare between single gene disease and chromosomal diseases: (4 M)

B: Define ONLY THREE of the following: (6 M)

Pericentric inversion, Ring chromosome, Position effects, Nullisomic

Q10/ A: Define the following: (8 M)

Titan cells, Autopolyploidy Trophoblasts, Turner syndrome

B: Cytogenetically how would you explain the importance of telomerase gene. **(5 M)**

Q11/ Differentiate between the following: (6 M)

1. Partial trisomy VS Trisomy
2. Aneuploidy VS Polyploidy

Q12/ Fill in the blanks with the suitable word(s). (8 M)

1. Polyploidy results from of the two gametes.
2. is a general term which is often used to describe the generations or the production of polyploid cells.
3. Cytogenetics as it is a brunch of genetics, it also link other sciences like
4. The is considered as a type of heterochromatin which can be seen in the nucleus of women's cells.

BEST LUCK

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