

Date:26-6-19

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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27** | | | | | | |  |
| **B.Sc. ZOOLOGY - VI SEMESTER** | | | | | | |  |
| **Special Supplementary Examination, JUNE 2019** | | | | | | |  |
| **ZO 6115- Histology, Genetics and Biotechnology** | | | | | | |  |
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| **Time- 2 1/2 hrs** | |  | **Max Marks-70** | | |  |  |
| Supplementary candidates only. | | | | | | |  |
| **This paper contains 2 printed pages and three parts** | | | | | | |  |

**Note: Draw neat labelled diagrams wherever necessary**

**Indicate the question numbers clearly.**

**PART A**

**Answer the following: 15 X 1 =15**

1. The juxtaglomerular apparatus comprises of \_\_\_\_\_\_\_\_\_\_\_\_ cells of DCT.
2. Lymphatic nodule in intestinal submucosa is \_\_\_\_\_\_\_\_\_\_\_\_.
3. Zona fasiculata cells differ from glomerulosa cells in having more \_\_\_\_\_\_\_\_in their cytoplasm.
4. \_\_\_\_\_\_, \_\_\_\_\_\_, & \_\_\_\_\_\_\_\_\_ muscles are found in stomach.
5. Circular, longitudinal & oblique b. Skeletal, circular & oblique
6. Skeletal, longitudinal & circular d. Oblique, longitudinal & skeletal.
7. Blood passages with fenestrated endothelium is
8. Squamous cells b. Von Kupffer cells c. Acinar cells d. Sinusoids
9. When a heterozygous individual is crossed with a recessive parent, the genotypic ratio is 1:1. **True / False.**
10. Rose comb in fowls is a dominant trait. **True/False**.
11. Supporting cells in taste buds are innervated by gustatory nerve **True / False**.
12. If the genes are completely or fully linked, what are the chances of recombination?
13. 65%  b. 25%  c. 0% d.100%
14. Colchicine interferes in \_\_\_\_\_\_ during chromosomal segregation
15. Condensation b. Replication c. spindle formation d. all the three
16. Cri-du-chat is disorder is due to
17. Deletion b. Duplication c. Inversions d. Simple translocation
18. Thalassemia is an allosomal disorder. **True / False**
19. \_\_\_\_\_ numbers of barr bodies are seen in the cells of an individual with XXXY.
20. 3 b. 2 c. 1 d. 0
21. Dosage compensation is also called as \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
22. The white eye colour inheritance in drosophila is
23. Co dominance b. Epistatsis c. Sex linked d. Interaction of gene

**PART B**

**Answer any FIVE of the following: 5 X 5 = 25**

1. In fowls, white plumage in Leghorns is dominant over the coloured plumage, whereas in Wyandotte, the coloured plumage is dominant to white plumage. {Note: Inhibitor gene **I** is epistatic over the hypostatic gene **C**. Leghorns have Dominant Inhibitor gene ( **I** ), Wyandottes have a recessive inhibitor gene ( **i** )}

If homozygous pure breeds of a white Leghorn is crossed with a white Wyandotte bird, what are the off springs seen in F1? What is phenotypic ration in F2 generations when the F1 off springs are self crossed for F2?

1. Write a short note on freemartin in cattle.
2. What are the clinical & cytological features of Down’s syndrome?
3. A man and a woman both with blood group B have 12 children of which ¾ are of B type blood group and ¼ are of O type blood group. What are genotype of the parents and also give the genotypic ratio of the children at their simplest form?
4. Draw a neat labelled diagram of a) Intestinal gland b) Graafian follicle

**(2.5 marks for each)**

1. If you are Rh positive, it means that there are Rh type proteins in your blood. If you are Rh negative, there are no Rh type proteins in your blood. Positive is dominant over negative, so heterozygous individuals are Rh positive. Problems can arise when an Rh negative mother has a child who is Rh positive. Why does the mother's body attack her own baby in this situation? Why does the situation get worse for the second pregnancy?
2. What is sex linked inheritance? Explain with an example.

**PART C**

**Answer any THREE of the following: 3 X 10 = 30**

1. With simple sketches explain the histological details of
2. Pancreas b)Thyroid lobule
3. Draw a neat labelled diagram depicting the cellular details

a) Testicular lobule **(4 m)**

b) Stomach **(6 m)**

1. Explain the operon model of gene regulation with an example.
2. Write a short note on the following genetic disorders in man
3. Galactosemia b. Sickle cell anaemia **(5+5m)**
4. State the laws of Mendel. Illustrate the law of independent assortment with an suitable example. **( 3+7)**

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