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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27** |  |
| **B.Sc. ZOOLOGY - VI SEMESTER** |  |
| **SEMESTER EXAMINATION: APRIL 2018** |  |
| **ZO 6115- Histology And Genetics** |  |
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| **Time : 2 ½ Hours**  |  |  **Max. Marks : 70** |
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| **This paper contains 2 printed pages and three parts** |  |

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

**Indicate the question numbers clearly.**

**I . Answer the following 1X15= 15**

1. In an empty contracted stomach, the mucosa is thrown into folds known as
2. Foveole b) Rugae c) Crypts d) Villi
3. Blood filled spaces lined with endothelium and kupffer cells in the liver are called
4. Ductules b) Venules c) Sinusoids d) Arterioles
5. Podocytes are present in
6. Ureters b) Loop of Henle c) Proximal Convoluted Tubule d) Bowman’s capsule
7. Calcitonin is a thyroid hormone which
8. Elevates calcium level in blood b) Lowers calcium level in blood

 c) Elevates iodine level in blood d) Has no effect on calcium

1. Cross between F1 individuals with homozygous recessive parents is known as
2. Reciprocal cross b) Back cross c) Test cross d) All
3. A PTC taster couple have a non-taster child, the genotype of the child is :

( T is for dominance and t is for recessive gene )

1. TT b) Tt c) tt d) Both a and b
2. A brown eyed couple have a son who is blue-eyed.What are the genotypes of the parents. (BB – Brown eye, bb- blue eye)
3. BB b) Bb c) bb d) BB or Bb
4. A cross between yellow wrinkle and yellow wrinkle gives 115 yellow wrinkle and 32 green wrinkle plants, the genotype of yellow wrinkle is:

(YY is dominant over yy for colour and RR is dominant over rr for wrinkle)

1. YYRR & yyrr b) YyRr & YyRr c) yyRR & yyrr d) Yyrr & Yyrr
2. A boy of blood group ‘O’ has a sister of AB group. The blood groups of his parents are:
3. O & AB b) A & B c) O & A d) O & B
4. XX-XO mechanism of sex determination is not found in:
5. Grasshoppers b) Crickets c) Wasps d) Beetles
6. The replacement of a purine base by pyramidine base or vice versa is

a) Tautomerization b) Transversion c) Base Analogs d) Translocation

1. The syndrome which is due to monosomy of X-chromosome
2. Turner syndrome b) Klinefelter syndrome c) Cri-du-chat d) Down’s syndrome
3. To be a cloning vector, a plasmid does not require
4. An origin of replication b) an antibiotic resistance marker

c) a resistance site d) to have a high copy number

1. Phenylketonuria is an autosomal recessive trait with locus on chromosome:
2. 8 b) 12 c) 10 d) 6
3. Phenotypic improvement of humans after birth

 a) Eugenics b) Euphenics c) Gene pool d) Consanguinity

**II. Answer any FIVE of the following** **5 X 5 = 25**

1. Bring out the histological details of a hepatic lobule with a neat labeled diagram.
2. Explain Rh factor? How can a marriage between Rh-ve female and Rh +ve homozygous male cause erythroblastosis foetalis?
3. What is the role of biological tools in Recombinant DNA technology.
4. Note: In guinea pigs, rough coat R is dominant over smooth coat r and black coat B I white b. R and B are independent genes.

Problem: A rough black guinea pig bred with a rough white one gives 28 rough black; 31 rough white; 11 smooth black and 10 smooth white. What are the genotypes of the parents.

1. Explain the law of segregation with a suitable example.
2. What are the Clinical observations of the following syndromes:

a) Down’s syndrome b) Turner’s syndrome

1. Consanguineous marriages are prohibited in many human societies. Give reasons.

**III. Answer any THREE of the following 10 X 3 =** 3**0**

1. Explain the histological details of the Graafian follicle with a labeled diagram.
2. Explain the inheritance of a sex-linked recessive gene with an example you have studied.
3. What is the composition of Lac operon? How is the operator switched on and off during gene expression? Explain.
4. Explain the various steps involved in the production of human insulin.
5. Explain the detection of X-linked recessive lethal mutation by ClB technique.

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