



Answer five of the following questions

Q1/ Define four of the following terms? [12 marks]

Genetics, gene, alleles, heterozygous, extranuclear inheritance.

Q2/ Solve two of the following:

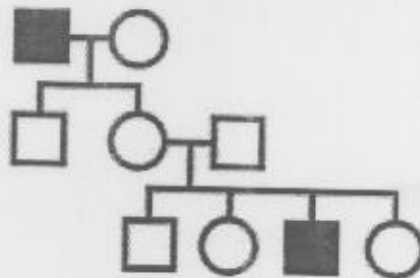
- Diagram the different classes of chromosome? [6 marks]
- Give the haploid number of chromosomes for four of the following organisms? [6 marks]  
Fruit fly, garden pea, human, house mouse, Rhesus monkey.
- Calculate the number of gametes, genotypes, and phenotypes that can be produced from the following gene pairs? [6 marks]  
AaBB, AaBBCc, AaBbCcDd.

Q3/ Give the genotypes, phenotypes, and their ratios for F<sub>1</sub> and F<sub>2</sub> that can be result from the following crosses:

- Black guinea pig (pure dominant) X White guinea pig (recessive). [4 marks]
- AB, N X O, N. [4 marks]
- Red flower X White flower. [4 marks]

Q4/ Solve the following:

- Diagram the comparison between paracentric and pericentric inversion? [6 marks]
- Give the genotypes that express the transmission of color blindness trait in the following human pedigree: [6 marks]



Q5/ Explain in a diagram the Lyon hypothesis? [12 marks]

Q6/ Solve the following:

- Give the genetic symbols for six of the following traits:  
Turner syndrome, Down syndrome, Edwards syndrome, Cri-du-Chat syndrome, hen-feathered cock, not bald man, bald women. [6 marks]
- Explain in a diagram the variation in chromosome number during the first division of meiosis? [6 marks]