UNIVERSITY OF NAIROBI
SCHOOL OF BIOLOGICAL SCIENCES
CONTINUOUS ASSESSMENT TEST (CAT 1)
SBT 102: INTRODUCTION BIOCHEMISTRY AND GENETICS
DATE: AUGUST 6, 2013
TIME: 1 HOUR
NAME:
REGISTRATION NUMBER:

SECTION A: ANSWER ALL QUESTIONS IN THE SPACES PROVIDED (15 MARKS)

1.Chromosomes that have the centromere at the extreme end are said to be
2.The mRNA sequence complimentary to sequence GGAATTCC of DNA is
3.Two chromosomes that contain corresponding types of genetic material are said to be
4.A gene that masks the effect of another non- allelic gene is said to be
5.The domestic fowl exhibits_____ sex system
6.A small DNA molecule composed of a pentose sugar, a phosphate group and a purine or pyrimidine and is known as
7.In order to be male, an animal must have a single Y chromosome? (true/ false)
8.In Drosophila, red eyes are dominant over white eyes and the gene is carried on the X chromosome. If a white eyed female is crossed with a red eyed male, out of 1000 male F1 offspring, the number of offspring that would be expected to have white eyes is
For questions 9- 15 tick the correct answer.
9.An F2 monhybrid ratio of 1:2:1 indicates a case of:
a.Sex linkage
b.Incomplete dominance
c.Lethal gene
d.Complete dominance
10.How many F2 genotypes will be produced from the parental cross CCDDEE *ccddee?
a.8
b.9
c.27
d.16
11.During anaphase I of meiosis:
a.Sister chromatids separate
b.Homolgous chromosomes separate
c.Crossing over is thought to occur
d.The sister chromatids are called a bivalent
12.None of the offspring produced in a cross between a plant with purple flowers and one with white flowers was white. If purple is dormant to white, we can conclude that:

a.The white plant was heterozygous
b.The purple plant was homozygous
c.The purple was heterozygous
d.White is epistatic to purple
13.The S cell cycle phase during mitosis is characterized by:
a.Growth of organelles
b.DNA replication
c.Cell growth and differentiation
d.Cell division
14.In humans, haemophilia is a sex linked trait. The chance that a couple will produce a haemophilic son if the mother is haemophilic and the father is normal is:
a.0%
b.25%
c.50%
d.100%
15.If a culture of bacteria is grown on medium containing heavy nitrogwen and then transferred to a medium containing light nitrogen and the DNA subsequently characterized, then:
a.All the DNA will contain heavy nitrogen
b.All the DNA will contain light nitrogen
c.DNA molecules will contain either heavy or light nitrogen but not both.
d.DNA molecules with both heavy and light nitrogen will be formed.
SECTION B: ANSWER ALL THREE QUESTIONS IN THE SPACES PROVIDED (5 MARKS EACH)
16.Across involving two traits produced F1 offspring in the phenotypic ratio 3:6:3:1:2:1. In what phenotypic ratios did the two characters segregate independently? Explain using a suitable example.
17.State two similarities and three difference between prophase of mitosis and meiosis.
18.Compare and contrast the structure of DNA and RNA.