PENANG SANGAM HIGH SCHOOL

YEAR 12

BIOLOGY

WORKSHEET NUMBER 4

QUESTIONS

(Question 1 is based on the topic di hybrid cross, hence in order to answer you will be required to draw the punnet square)

1. In tomato plants, the genes for stem colour and presence of epidermal hairs are found on different chromosomes. The allele for purple stem **P** is dominant to the allele for green stem **p** and the allele for hairy stem **H** is dominant to the allele for smooth stem **h**. The following cross was carried out.
PpHh × pphh
32 offspring were produced from this cross. How many of these offspring would be expected to have purple, smooth stems?

A. 24 B. 16 C. 8 D. 4

(Question 2 and 3 are based on the topic chemicals of life, use your knowledge to answer the following questions)

2. Carbohydrate is stored in the liver as
A glucagon
B glucose
C glycogen
D starch.

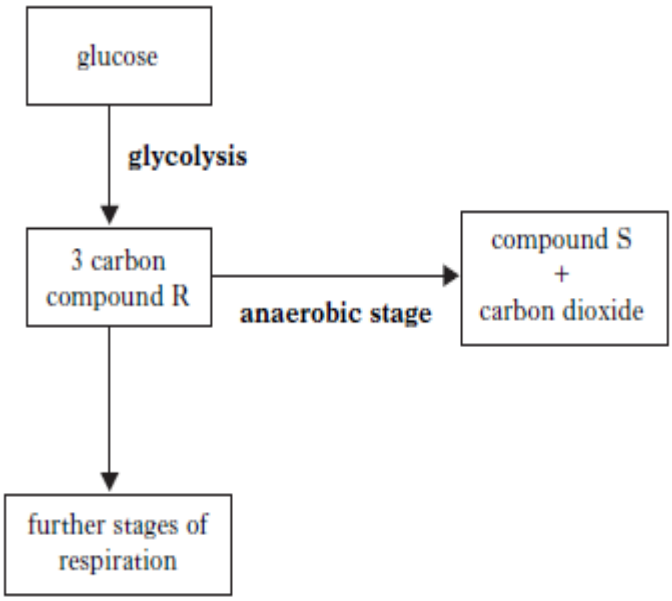
3. Which of the following compounds are linked by peptide bonds to form more complex molecules?
A Bases
B Nucleic acids
C Nucleotides
D Amino acids

(For question 4, use chargaff's rule states to answer)

4. A DNA molecule consists of 4000 nucleotides, of which 20% contain the base adenine. How many of the nucleotides in this DNA molecule will contain guanine?
A 800
B 1000
C 1200
D 1600

(Question 5 is based on the topic respiration, as you know there are two types of respiration (aerobic and an aerobic) and takes place in the mitochondria with different stages taking place in different parts of the mitochondria. Use your knowledge and answer)

5. a. The diagram below shows an outline of respiration in yeast cells.



i. State the location of glycolysis._____
ii. Name **one** substance, other than glucose, which must be present for glycolysis to occur._____
iii. Name compounds R and S.
R_____
S_____
iv. Explain why the further stages of respiration cannot occur in anaerobic conditions.
_____
_____

5.b. Complete the table below which relates to the names, locations and products of two further stages of aerobic respiration in cells.

Name of stage	*Location of stage*	*Products of stage*
Krebs cycle		carbon dioxide, hydrogen and ATP
	cristae of mitochondria	

THE END