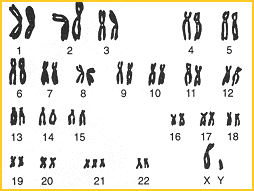
**Task 8 revision (ANSWERS)**

1. If 40% of the nucleotides in a sample of DNA contains adenine, what percentage of the sample contains the nucleotide cytosine
2. 40%
3. 60%
4. 20%
5. 10%
6. Where in human cells is DNA located?
7. In the nucleus.
8. In the nucleus and in the mitochondria.
9. In the nucleus and in the ribosomes.
10. In the nucleus and in the Golgi body.
11. During cell division, the DNA molecule replicates itself. The reason for this is so:
12. if the cell makes a mistake there is enough DNA to go around
13. the daughter cells end up with the same genetic information as the parent cell
14. the DNA can move out of the nucleus into the cytoplasm
15. there are enough chromosomes for each cell produced
16. Below is a photomicrograph showing a baby's chromosomes in what is called a karyotype.



1. The chromosomes shown above are not always visible. What is the first stage of the cell cycle in which they be seen?
2. Interphase
3. Prophase
4. Metaphase
5. Telophase
6. Two cells which are the products of mitosis
   1. have identical genetic potential
   2. will develop identically
   3. have different chromosome numbers in each cell
   4. contain chromosomes that are not duplicated
7. During which of the following stages of the mitotic cycle can the arrangement of chromosomes at the

equator of the spindle be observed at a cell?

1. Prophase
2. Interphase
3. Telophase
4. Metaphase
5. A DNA molecule may be made using which of the following?

1. uracil 2. adenine 3. thymine 4. guanine 5. cytosine

* 1. *1, 2, 3, 4*
  2. *2, 3, 4, 5*
  3. *1, 3, 4, 5*
  4. *1, 2, 3, 4*

1. If you were examining a sequence of base pairs in a DNA molecule, which sequence would be

possible in a properly constructed double-stranded DNA molecule?

* 1. A+T, C+G, T+A, T+A, G+C
  2. A+T, G+C, C+C, T+U, G+T
  3. G+C, C+G, A+U, U+A, T+A
  4. G+G, C+C, A+A, T+T

1. A DNA molecule is bound to special proteins that assist them coil into a smaller area. These proteins

are called:

* 1. nucleotides
  2. Chromatin
  3. Genes
  4. histones

11. In meiosis, the number of gametes which result from the original cell is

a. 16

b. 4

c. 23

d. 46

END OF MULTIPLE CHOICE SECTION

(11 marks)

PART B: Short Answer questions. (12 marks)

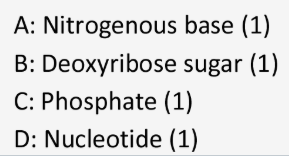
1. In the DNA molecule image below, name the following structures. (4 marks)

B

A

D

C



1. . Describe one major event for each of the phases of mitosis.

|  |  |
| --- | --- |
| **Phase** | **Events** |
| Prophase | chromosomes appear  spindle/centrioles |
| Metaphase | chromosomes line up along the equator of the cell |
| Anaphase | each pair of chromatids separate at the centromere |

(3 marks)

1. . Early detection is critical for the successful treatment of cancer. Describe one procedure which is used to detect the presence of cancer. (Name the cancer and describe the procedure)

|  |  |
| --- | --- |
| cervical | Pap smear |
| breast | self examination/ mammogram |
| bowel | faecal occult blood test/colonoscopy |
| prostate | digital rectal examination; prostate-specific antigen; biopsy |

(3 marks)

1. Explain the difference between the coding and template strand of the DNA molecule

* Template strand – is the strand that is copied during protein synthesis to make mRNA
* Coding Strand – is not copied. Will have the same code as the mRNA strand.

(2 marks)