

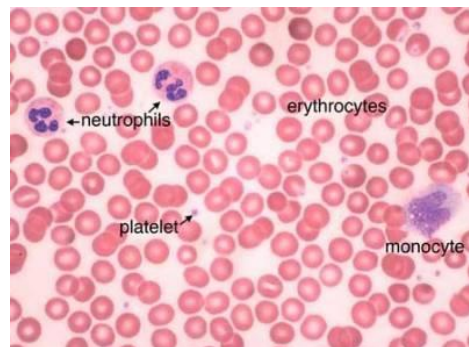
## **BB101: 2023 Autumn semester (D1)**

**Quiz #2: Each correct answer is worth 1 mark. You must answer only within the space provided. Time for taking this quiz is 15 minutes.**

Qs 1. Why are we taking your blood to do a genetic test?

Genetic testing requires DNA. Blood has cells that contain DNA, that's why we are collecting blood for genetic testing  
(If DNA or nucleus is written give marks)

Qs 2. The image of stained blood cells is given below.



Circle all of the correct answers for blood cells that will NOT give the information for the genetic test.

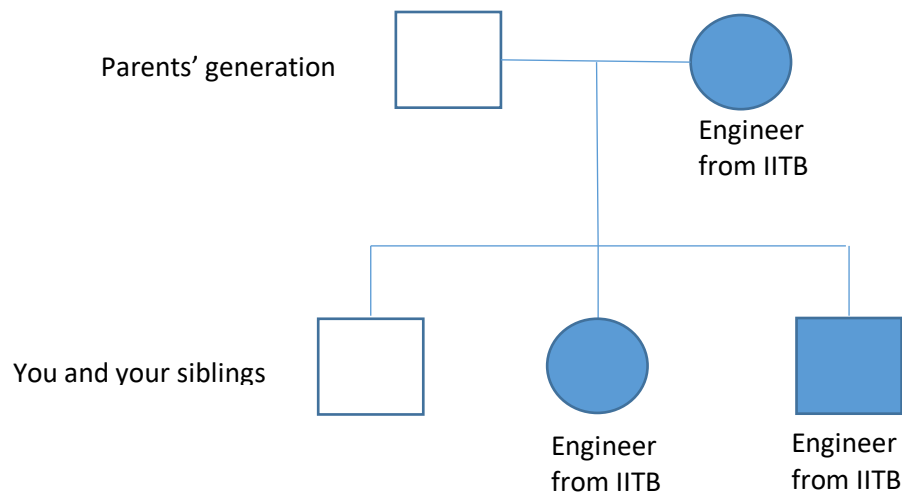
- A) Neutrophils
- ☒ B) Erythrocytes (red blood cells)
- C) Monocytes
- ☒ D) Platelets

Both options or no marks

Qs 3. Based on your tutorial discussions, which other cells will you take for the genetic test that would involve a non-invasive procedure? Non-invasive means that you are not being pricked by needles to collect the sample. Explain your choice briefly.

Hair follicles, Cheek Swab, Pap -smear, etc as long as it is non-invasive

There is a gene that is associated with the successful entrance into engineering institutes, called IITB1. This gene is a dominant gene (IITB1) and will show the phenotype of being an engineer only when it is found as two dominant alleles (IITB1/IITB1). You carry out a study of your family and find the following data.



Qs 4. What is the genotype of your father? Use IITB1 and iitb1 as the symbols for the genotypes. Explain briefly.

IITB/iitb. Since the mother is an IITB engineer she must have the genotype IITB/IITB. From 3 offsprings, two are IITB engineers, that is father must have contributed one IITB allele. Since one of the offspring is non-IITB, he must have atleast one iitb allele. So, the father must be a heterozygous - IITB/iitb.

(Explanation is MUST)

Qs 5. What of the following genotypes is NOT possible for the maternal grandparents? Circle all the correct answers.

- A) IITB1/IITB1 and IITB1/IITB1
- B) IITB1/iitb1 and IITB1/iitb1
- ☒ C) iitb1/iitb1 and iitb1/iitb1
- ☒ D) iitb1/iitb1 and IITB1/IITB1

