

# The Journey of Karl Koala

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

## 1 Level 1: Definitions & Concepts

1. What is a simple example of a non-positional number system used historically?
2. What does the term “positional number system” mean?
3. What is the base of the Decimal number system?
4. What is the base of the Binary number system, and why is it fundamental for modern computers?
5. What digits are used in the Binary number system (Base-2)?

## 2 Level 2: Basic Identification & Place Value

6. In the decimal number  $123_{10}$ , what value does the digit ‘2’ represent?
7. What is the decimal value of the binary number  $101_2$ ?
8. What digits are used in the Hexadecimal system (Base-16)? List them all.
9. In the hexadecimal number  $1A5_{16}$ , what is the decimal value of the digit ‘A’?
10. What is the base of the Octal number system, and what digits does it use?

## 3 Level 3: Simple Conversions (Binary/Decimal)

11. Convert the decimal number  $13_{10}$  to binary.
12. Convert the binary number  $1101_2$  to decimal.
13. Convert the decimal number  $25_{10}$  to binary.
14. Convert the binary number  $10110_2$  to decimal.
15. What is the largest decimal number that can be represented with 4 binary digits (bits)?

## 4 Level 4: Hexadecimal & Octal Concepts & Conversions

16. Convert the hexadecimal number  $2B_{16}$  to decimal.
17. Convert the decimal number  $45_{10}$  to hexadecimal.
18. Convert the octal number  $37_8$  to decimal.
19. Convert the decimal number  $20_{10}$  to octal.
20. In the

hexadecimal number  $FAC E_{16}$ , what place value does the 'A' represent in terms of powers of 16?

## 5 Level 5: Inter-base Conversions (Binary/Hex/Octal)

21. Convert the binary number  $11010110_2$  directly to hexadecimal. 22. Convert the hexadecimal number  $D5_{16}$  directly to binary. 23. Convert the binary number  $10111001_2$  directly to octal. 24. Convert the octal number  $153_8$  directly to binary. 25. Convert the hexadecimal number  $A8_{16}$  to octal (Hint: Use binary as an intermediate step).