Chapter 2: Number Systems

MCQs from the Chapter "Number System":

EXERCISE MCQs with Answers

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1. What does ASCII stand for?
(a) American Standard Code for Information Interchange ✓
(b) Advanced Standard Code for Information Interchange
(c) American Standard Communication for Information Interchange
(d) Advanced Standard Communication for Information Interchange

2. Which of the following numbers is a valid binary number?
(a) 1101102 (b) 11011 ✓
(c) 110.11 (d) 1101A

3. How many bits are used in the standard ASCII encoding?
(a) 7 bits ✓ (b) 8 bits
(c) 16 bits (d) 32 bits

4. Which of the following is a key advantage of Unicode over ASCII?
(a) It uses fewer bits per character
(b) It can represent characters from many different languages ✓
(c) It is backward compatible with binary (d) It is specific to the English language

5. How many bytes are used to store a typical integer?
(a) 1 byte (b) 2 bytes
(c) 4 bytes ✓ (d) 8 bytes

6. What is the primary difference between signed and unsigned integers?
(a) Unsigned integers cannot be negative ✓
(b) Signed integers have a larger range
(c) Unsigned integers are stored in floating-point format
(d) Signed integers are only used for positive numbers

7. In the single precision, how many bits are used for the exponent?
(a) 23 bits (b) 8 bits ✓
(c) 11 bits (d) 52 bits

8. What is the approximate range of values for single-precision floating-point numbers?
(a) 1.4×10^{-45} to 3.4×10^{38} ✓ (b) 1.4×10^{-38} to 3.4×10^{45}
(c) 4.9×10^{-324} to 1.8×10^{308} (d) 4.9×10^{-308} to 1.8×10^{324}

9. What are the tiny dots that make up an image called?
(a) Pixels ✓ (b) Bits
(c) Bytes (d) Nodes

10. In an RGB color model, what does RGB stand for?
(a) Red, Green, Blue ✓ (b) Red, Gray, Black
(c) Right, Green, Blue (d) Red, Green, Brown

Final Answers:
1 → (a) - 2 → (b) - 3 → (a) - 4 → (b) - 5 → (c) - 6 → (a) - 7 → (b) - 8 → (a) - 9 → (a) - 10 → (a)

Additional MCQs

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1. Number Systems & Types

Q1. Which number system uses base 2?
(a) Decimal (b) Binary ✓
(c) Octal (d) Hexadecimal

Q2. The decimal number system is based on how many digits?
(a) 2 (b) 8
(c) 10 ✓ (d) 16

Q3. The octal number system uses which digits?
(a) 0–7 ✓ (b) 0–8
(c) 1–7 (d) 0–9

Q4. Hexadecimal system uses digits and letters from?
(a) 0–7 (b) 0–9 and A–F ✓
(c) 0–9 and A–Z (d) 0–15

Q5. What is the base of hexadecimal?
(a) 2 (b) 8
(c) 10 (d) 16 ✓

2. Conversions between Number Systems

Q6. The binary number 1011 equals what in decimal?
(a) 9 (b) 10
(c) 11 ✓ (d) 12

Q7. The decimal number 25 equals what in binary?
(a) 10011 ✓ (b) 11001
(c) 10101 (d) 11100

Q8. The octal number 17 is equal to which decimal value?
(a) 15 ✓ (b) 16
(c) 17 (d) 18

Q9. Convert hexadecimal A to decimal.
(a) 9 (b) 10 ✓
(c) 11 (d) 12

Q10. Which of these is the binary of hexadecimal F?
(a) 1010 (b) 1110
(c) 1111 ✓ (d) 1000

3. Binary Arithmetic

Q11. What is the result of 101 + 11 (binary addition)?
(a) 110 (b) 1000 ✓
(c) 1010 (d) 111

Q12. What is 1101 – 101 (binary subtraction)?
(a) 1110 (b) 1000 ✓
(c) 1011 (d) 1100

Q13. Which rule is correct for binary multiplication?
(a) 1 × 1 = 1 ✓ (b) 1 × 1 = 0
(c) 1 × 0 = 1 (d) 0 × 0 = 1

Q14. Binary division: 1100 ÷ 10 = ?
(a) 101 (b) 110 ✓
(c) 111 (d) 1000

Q15. Which carry is produced when adding 1 + 1 in binary?
(a) 0 (b) 1 ✓
(c) 2 (d) None

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4. Data Representation (ASCII, Unicode, Integers, Floating Point)

Q16. How many bits are used in ASCII?
(a) 7 ✓ (b) 8
(c) 16 (d) 32

Q17. Unicode can represent:
(a) Only English characters (b) Only symbols
(c) Characters from many languages ✓ (d) Only numbers

Q18. Unsigned integers cannot represent:
(a) Positive numbers (b) Zero
(c) Negative numbers ✓ (d) Decimal numbers

Q19. In single precision, exponent field size is:
(a) 23 (b) 8 ✓
(c) 11 (d) 52

Q20. The approximate range of single-precision floating numbers is:
(a) 1.4×10^{-45} to 3.4×10^{38} ✓ (b) 1.4×10^{-38} to 3.4×10^{45}
(c) 4.9×10^{-324} to 1.8×10^{308} (d) 4.9×10^{-308} to 1.8×10^{324}

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5. Graphics & Colors

Q21. Tiny dots that make up an image are called?
(a) Pixels ✓ (b) Bits
(c) Bytes (d) Nodes

Q22. RGB model stands for:
(a) Red, Green, Blue ✓ (b) Red, Gray, Black
(c) Right, Green, Brown (d) Red, Green, Bright

Q23. If an image has 1920 × 1080 resolution, how many pixels does it have?
(a) 1,920 (b) 1,080
(c) 2,073,600 ✓ (d) 1920 + 1080

Q24. In an 8-bit grayscale image, how many shades of gray can be represented?
(a) 128 (b) 256 ✓
(c) 512 (d) 1024

Q25. Which color is produced when RGB values are (255, 0, 0)?
(a) Blue (b) Green
(c) Red ✓ (d) White
