1. What is a pointer in C++?

a. a. A variable that stores the address of another variable

b. b. A function that points to data

c. c. An operator used to perform arithmetic

d. d. A keyword used to define arrays

Answer: a

2. How can you declare a pointer in C++?

a. a. int ptr;

b. b. int \*ptr;

c. c. int &ptr;

d. d. int ptr[];

Answer: b

3. What does the dereference operator (\*) do in C++?

a. a. It multiplies two pointers

b. b. It gives the address of a variable

c. c. It accesses the value at the address stored in the pointer

d. d. It creates a new pointer

Answer: c

4. Which of the following is the correct way to assign an address to a pointer in C++?

a. a. ptr = &var;

b. b. ptr = var;

c. c. \*ptr = &var;

d. d. &ptr = var;

Answer: a

5. How do you access the memory address of a variable?

a. a. Using the dereference operator (\*)

b. b. Using the address-of operator (&)

c. c. By multiplying the variable with a pointer

d. d. By dividing the variable by a pointer

Answer: b

6. What is the output of the following code snippet?  
int var = 5;  
int \*ptr = &var;  
cout << \*ptr;

a. a. var

b. b. 5

c. c. &var

d. d. ptr

Answer: b

7. What is a null pointer in C++?

a. a. A pointer that points to zero

b. b. A pointer that points to a memory address that doesn't exist

c. c. A pointer that has not been initialized

d. d. A pointer that is guaranteed to point to a valid memory address

Answer: b

8. What is pointer arithmetic in C++?

a. a. Adding, subtracting, multiplying, and dividing pointers

b. b. Performing arithmetic operations on the values pointed to by pointers

c. c. Adding and subtracting integers from pointers to move to different memory addresses

d. d. Illegal operations in C++ because pointers cannot be used in arithmetic

Answer: c

9. What is the result of subtracting two pointers in C++?

a. a. A new pointer

b. b. The memory address of the first pointer

c. c. The number of elements between the two memory addresses

d. d. An error because pointers cannot be subtracted

Answer: c

10. How can you dynamically allocate memory for an integer in C++?

a. a. int \*ptr = new int(5);

b. b. int ptr = new int;

c. c. int \*ptr = new int;

d. d. int ptr = new int(5);

Answer: c