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**Section:** BSCS-B

**Subject:** Programming Fundamental

**Ans:1**

#include <iostream>

using namespace std;

int main() {

int a = 10;

float b = 5.5;

char c = 'A';

double d = 15.75;

int \*pInt = &a;

float \*pFloat = &b;

char \*pChar = &c;

double \*pDouble = &d;

cout << "Pointer values and sizes:" << endl;

cout << "int pointer: " << pInt << ", value: " << \*pInt << ", size: " << sizeof(pInt) << endl;

cout << "float pointer: " << pFloat << ", value: " << \*pFloat << ", size: " << sizeof(pFloat) << endl;

cout << "char pointer: " << pChar << ", value: " << \*pChar << ", size: " << sizeof(pChar) << endl;

cout << "double pointer: " << pDouble << ", value: " << \*pDouble << ", size: " << sizeof(pDouble) << endl;

return 0;

}

**Ans:2**

#include <iostream>

using namespace std;

int main() {

const int size = 10;

int arr[size];

int \*ptr = arr;

for (int i = 0; i < size; i++) {

arr[i] = i + 1;

}

cout << "Array elements in forward direction: " << endl;

for (int i = 0; i < size; i++) {

cout << \*(ptr + i) << " ";

}

cout << endl;

cout << "Array elements in reverse direction: " << endl;

for (int i = size - 1; i >= 0; i--) {

cout << \*(ptr + i) << " ";

}

cout << endl;

return 0;

}

**Ans:3**

#include <iostream>

using namespace std;

void displayArray(int \*arr, int size) {

for (int i = 0; i < size; i++) {

cout << \*(arr + i) << " ";

}

cout << endl;

}

int main() {

const int size = 10;

int arr[size];

for (int i = 0; i < size; i++) {

arr[i] = i + 1;

}

cout << "Array elements: " << endl;

displayArray(arr, size);

return 0;

}

**Ans:4**

#include <iostream>

using namespace std;

void swap(int \*x, int \*y) {

int temp = \*x;

\*x = \*y;

\*y = temp;

}

int main() {

int a = 10, b = 20;

cout << "Before Swap: a = " << a << ", b = " << b << endl;

swap(&a, &b);

cout << "After Swap: a = " << a << ", b = " << b << endl;

return 0;

}

**Ans:5**

#include <iostream>

using namespace std;

void calculate(int a, int b, int \*sum, int \*diff, int \*prod, double \*quot) {

\*sum = a + b;

\*diff = a - b;

\*prod = a \* b;

\*quot = (b != 0) ? (double)a / b : 0.0;

}

int main() {

int a = 10, b = 5, sum, diff, prod;

double quot;

calculate(a, b, &sum, &diff, &prod, &quot);

cout << "Sum: " << sum << endl;

cout << "Difference: " << diff << endl;

cout << "Product: " << prod << endl;

cout << "Quotient: " << quot << endl;

return 0;

}

**Ans:6**

#include <iostream>

using namespace std;

int\* duplicateArray(int \*arr, int size) {

int \*newArray = new int[size];

for (int i = 0; i < size; i++) {

newArray[i] = arr[i];

}

return newArray;

}

int main() {

const int size = 5;

int arr[size] = {1, 2, 3, 4, 5};

int \*newArr = duplicateArray(arr, size);

cout << "Original array: ";

for (int i = 0; i < size; i++) {

cout << arr[i] << " ";

}

cout << endl;

cout << "Duplicated array: ";

for (int i = 0; i < size; i++) {

cout << newArr[i] << " ";

}

cout << endl;

delete[] newArr; // Free the dynamically allocated memory

return 0;

}