**FUNCTIONS- Assignment I**

Q 1: **FIND AND FIX ERRORS** (10 MARKS)

Q1a) Find any FIVE **ERRORS** in the following C++ code segments. For each error, indicate the line and provide the correction in the table given below. **(5 MARKS)**

#include <iostream>

#include <iomanip>

using namespace std;

4.

struct Date {int month; int day; int year};

6.

7. int days(Date&);

8. int main()

9. {

10. Date current;

11. int num;

12. cout << "Enter the current month: ";

13. cin >> current.month;

14. cout << "\nEnter the current day: ";

15. cin >> current.day;

16. cout << "\nEnter the current 4-digit year: ";

17. cin >> year->current;

18.

19. num = days(&current);

20. cout << "\nThe number of days since the turn of the"

21. << " century is: " << num;

22.

23. cin.get();cin.ignore();

24.

25. return 0;

26. }

27.

28. long days(Date& temp)

29. {

30. return ((temp->day-1) + 30\*(temp->month - 1) +

31. 360\*(temp.year-1900);

32.

33. }

|  |  |
| --- | --- |
| **Line No** | **Correction** |
| 5 | struct Date {int month; int day; int year;}; |
| 17 | cin >> current.year; |
| 19 | num = days(current); |
| 28 | int days (Date& temp) |
| 30 | (temp.day-1) + 30\*(temp.month - 1) + |
| 31 | 360\*(temp.year-1900)); |

Q1b) Find any FIVE **ERRORS** in the following C++ code segments. For each error, indicate the line and provide the correction in the table given below. **(5 MARKS)**

1. #include <iostream>

2. #include <iomanip>

3. #include <math>

4. using namespace std;

5. const double TaxRate = 0.16;

6. struct Employee

7. {

8. int idNum;

9. double payRate;

10. double hours;

11. };

12. double calcNet(Employee \*);

13. int main()

14. {

15. Employee emp = {6782, 8.93, 40.5}

16. double netPay;

17. netPay = calcNet(&emp);

18. cout << setw(10)

19. cout << setiosflags(ios::fixed)

20. << setprecision(2);

21. cout << "The net pay for employee "

22. << emp.idNum << " is $ " << netPay << endl;

23. return 0;

24. }

25. double calcNet(Employee \*Emp)

26. {

27. return (:TaxRate \* pt->payRate \* pt->hours);

28. }

|  |  |
| --- | --- |
| **Line No** | **Correction** |
| 3 | #include <math.h> |
| 15 | Employee emp = {6782, 8.93, 40.5}; |
| 18 | cout << setw(10); |
| 27 | return (TaxRate \* Emp->payRate \* Emp->hours); |
| 27 | return (TaxRate \* Emp->payRate \* Emp->hours); |

**Q2a) Determine the output for the following C++ code segment: (5 MARKS)**

#include <iostream>

using namespace std;

const int M = 5, N =6;

int main () {

int i;

char A[M][N] = {{"INTER"}, {"FINAL"},

{"AMUSE"}, {"PALM"}, {""}};

for(i=0; i<M; i++)

cout << \*(\*(A+i)+i);

cout << endl;

return 0;

}

**// OUTPUT: IIUM**

**Q2b) Determine the output for the following code segment: (5 MARKS)**

#include <iostream>

using namespace std;

int main()

{

int x[3][3]={10, 15 ,20, 25, 30, 35, 40};

int sum = 0,I;

for(I= 0; I< 2; I++)

sum += x[2][I];

cout <<"sum = " << sum <<endl;

return 0;

//Output: **Sum = 40**

**Q3a) Convert the following IF-ELSE statement to SWITCH statement (5 MARKS):**

#include <iostream>

using namespace std;

int main()

{

char A;

cout <<"Please enter a lowercase letter:";

cin >> A;

if((A=='a')||(A=='e')||(A=='i')|| (A=='o')||(A=='u'))

cout <<"\nA vowel letter" <<endl;

else

cout <<"\nNot a vowel letter" <<endl;

return 0;

}

**Q3b) Convert the following FOR statement to WHILE statement: (5 MARKS)**

#include <iostream>

using namespace std; #include <iostream>

using namespace std;

int main()

{

for (int counter = 1; counter <= 10; counter++)

cout << “Counter is: ” << counter << endl;

return 0;

}

**Q4a) Write a C++ program to obtain the given output:**

Enter any number or enter 0 to exit: 8

Enter your choice, star[s] and hash[h]: h

########

Enter any number or enter 0 to exit: 4

Enter your choice, star[s] and hash[h]: s

\*\*\*\*

Enter any number or enter 0 to exit: 0

Are you sure you want to exit? (Y/N): Y

Thank you for using this program. Have a good luck!

Press any key to continue . . .

Q4b) Write a C++ **FUNCTION** named getData() that prompts the user to enter results for a

number of students passed to it using the following data structure: **(5 MARKS)**

struct result

{

string name;

int matNum;

double mark;

};

Q5) Write a program that declares three **SINGLE-DIMENSIONAL ARRAYS** named price, quantity and amount. Each array should be declared in the main() and should be capable of holding ten double-precision numbers. The numbers to be stored in price are 10.62, 14.89, 13.21, 16.55, 18.62, 9.47, 6.58, 18.32, 12.15, 3.98. The numbers to be stored in quantity are 4, 8.5, 6, 7.35, 9, 15.3, 3, 5.4, 2.9, 4.8. Your program should pass these three arrays to a function called extend(), which calculates the elements in the amount array as the product of the equivalent elements in the price and quantity arrays (for example, amount[1] = price [1] \* quantity[1]). After extend() has put values into the amount array, display the values in the array from within main(). Write the extend() function using pointers. Your functions should refer to the following function prototype:

void extend(double \*, double \*, double \*); **(10 MARKS)**