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| **Öğrenci No** |  |  | **Sınav Tarihi** | 15.01.2024 |
| **Ad - Soyad** |  |  | **Değerlendirme Sonucu** |  |
| **İmza** |  |  |
|  |

**SORULAR**

**S.1. (40 p) Aşağıda verilen algoritmaları ve C programlarını kendinizi bilgisayar yerine koyarak izleyin. Değişken değişimlerini ve ekran çıktısını yazın?**

|  |  |
| --- | --- |
| **a-) (10 p)**  int yaz(int a)  { if (a==0) return 0;  else  {if (a % 2 == 1) printf("%d\n",a);  return yaz(--a);  }}  main()  { yaz(7);} | **b-) (10 p)**  int a(int);  main()  { printf("%d",a(4)); }  int a(int n)  { if (n <= 1) return 1;  else return n \* a(n - 1)+2;  } |
| **Cevap (a):** | **Cevap (b):** |
| |  |  | | --- | --- | | a | Ekran | | ~~7~~ | 7  5  3  1 | | ~~6~~ | | ~~5~~ | | ~~4~~ | | ~~3~~ | | ~~2~~ | | ~~1~~ | | 0 | | |  |  |  | | --- | --- | --- | | n |  | Ekran | | ~~4~~ | ret. 4\*a(3)+2=58 | 58 | | ~~3~~ | ret. 3\*a(2)+2=14 | | ~~2~~ | ret. 2\*a(1)+2=4 | | 1 | ret. 1 | |
| **c-) (10 p)** **//&b= f8ff40**  int a(int &s)  {int b = 0;  while (s-- != 0)  {b += s % 10;  s /= 10;}  return b;}  main()  { int b = 2486;  printf("%d\n",a(b));  printf("%d",b);  } | **d-) (10 p) &x=AA, &y=BB, &z=CC**  void foo(int \*x, int \*y) {  int temp = \*x; \*x = \*y; \*y = temp; }  void bar(int \*a, int \*b, int \*c) {  \*a = \*a + 1;  foo(b, c);  \*c = \*c - 1;}  int main() {  int x = 10, y = 20, z = 30;  bar(&x, &y, &z);  printf("x=%d, y=%d, z=%d\n",x,y,z);  return 0;} |
| **Cevap (c):** | **Cevap (d):** |
| |  |  |  |  | | --- | --- | --- | --- | | b | b(fonk) | s | Ekran | | ~~2486~~ | ~~0~~ | f8ff40 | 16  -1 | | ~~2485~~ | ~~5~~ |  | | ~~248~~ | ~~12~~ |  | | ~~247~~ | ~~15~~ |  | | ~~24~~ | 16 |  | | ~~23~~ |  |  | | ~~2~~ |  |  | | ~~1~~ |  |  | | ~~0~~ |  |  | | -1 |  |  | | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | main | | | foo | | bar | |  |  | | x | y | z | \*x | \*y | \*a | \*b | \*c | temp | | ~~10~~ | ~~20~~ | ~~30~~ | BB | CC | AA | BB | CC | 20 | | 11 | 30 | ~~20~~ |  |  |  |  |  |  | |  |  | 19 |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |   Ekran Çıktısı: x=11, y=30, z=19 |

**C.2.**

#include<stdio.h>

int sum(int n);

main(){

int sayi;

printf("Bir Sayı Girin:");

scanf("%d",&sayi);

if (sayi%2==0) printf("%d",sum(sayi));

else printf("%d",sum(sayi-1));

}

sum(int n){

if(n<=0) return 0;

else return n+sum(n-2);

}

**C.3. (30 p)**

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#include <ctype.h>

int isDigit(char c) {

return c >= ‘0’ && c <= ‘9’;

}

int isOperator(char c) {

return c == '+' || c == '-' || c == '\*' || c == '/';

}

int charToInt(char c) {

return c – ‘0’;

}

int applyOperation(int a, int b, char op) {

switch(op) {

case '+': return a + b;

case '-': return a - b;

case '\*': return a \* b;

case '/': return a / b;

}

return 0;

}

int evaluateTPN(char\* expr) {

int a = 0, b = 0;

char op;

char token = expr[0];

int i = 0;

while (token != NULL) {

if (isdigit(token)) {

// Eğer operand (sayı) ise, önceki değeri güncelle

b = a;

a = charToInt(token);

} else if (isOperator(token)) {

// Eğer operatör ise, operasyonu uygula

op = token;

a = applyOperation(b, a, op);

}

i++;

token = expr[i];

}

return a;

}

int main() {

char rpnExpr[] = "34+2\*7/";

printf("Sonuç: %d\n", evaluateTPN(rpnExpr));

return 0;

}