

PROGRAMLAMA DİLLERİNİN PRENSİPLERİ VİZE SINAVI

a)Aşağıdaki programda statik kapsam bağlama kullanıldığı varsayılırsa, xi altprogramı için lokal olmayan değişken listesini(referencing environment) kutucuklara işaretleyiniz.

<pre>program main; var a: Boolean; procedure epsilon; var z: Boolean; var p: Real; procedure omega; var z: Integer; begin {omega} ... end {omega} procedure lambda; var p: Real; begin {lambda} ... end {lambda} begin {epsilon} ... end {epsilon} procedure sigma; var q: Real; var s: Real; var b: Integer; procedure rho; var r: Char; begin {rho} ... end {rho} procedure beta; var b: Integer; var c: Integer; procedure xi; var p: Boolean; begin {xi} ... end {xi} begin {beta} ... end {beta} begin {sigma} ... end {sigma}</pre>	<pre>..... procedure theta; var y: Boolean; procedure iota; var p: Integer; procedure alpha; var c: Integer; var x: Real; var y: Real; begin {alpha} ... end {alpha} begin {iota} ... end {iota} procedure mu; var c: Char; var z: Integer; var p: Char; begin {mu} ... end {mu} begin {theta} ... end {theta} begin {main} ... end {main}</pre> <table><tr><td></td><td>a</td><td>b</td><td>c</td><td>p</td><td>q</td><td>r</td><td>s</td><td>x</td><td>y</td><td>z</td></tr><tr><td>alpha</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>beta</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>epsilon</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input 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<pre> program main; var z: Real; var a: Char; var y: Char; procedure lambda; var q: Real; var s: Boolean; var b: Integer; procedure alpha; var p: Real; begin {alpha} ... end {alpha} begin {lambda} ... end {lambda} </pre>	<pre> procedure delta; var r: Integer; var c: Real; procedure zeta; var x: Real; begin {zeta} ... end {zeta} begin {delta} ... end {delta} begin {main} ... end {main} </pre>	<div> <input type="checkbox"/> alpha <input type="checkbox"/> delta </div> <div> <input type="checkbox"/> lambda <input type="checkbox"/> main </div> <div> <input type="checkbox"/> zeta </div> <p>1. b)main→delta→zeta çağrım sırası uygulanması halinde delta'da tanımlı c değişkeninin kapsam alanını işaretleyiniz.</p>
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2. Aşağıdaki programın sonucunu dinamik ve statik kapsam bağlama kurallarına göre hesaplayınız.

<pre> procedure big var x: integer; procedure sub1; begin print x; end; procedure sub2; var x: integer; begin x = 10; sub1(); end; begin x = 3; sub2(); end </pre>	Cevap:
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3. Aşağıdaki BNF için sözdizim grafiklerini çiziniz.

<pre> Expr = Term { ("+" "-") Term }. Term = Factor { ("*" "/") Factor }. Factor = id "(" Expr ")". </pre>	Cevap:
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4. Bir programlama dilinde öncelik ve birleşme özelliği aşağıdaki gibi tanımlanmıştır. Buna göre verilen işlemlerin hangi sırayla değerlendirileceğini yazınız.

Öncelik	*, /, not	a>b xor c or d<=17	-a or c=d and e	a*(b-1) / cmod d
	+, -, &, mod			
	- (tekli)			
	=, /, =, <, <=, >=, >			
	and			
	or, xor			
↓				
Birleşme	Soldan birleşim			

5. Aşağıdaki programın çıktısı bulunuz.

```
#include <stdio.h>
char my_array[] = {'s','y','l','i','i','d','f','_','u','r','b','n','e','u'};
char *ptr;
int main(void)
{
    int i,k=0;
    ptr = &my_array[0];

    printf("\n\n");
    while(k<3){
        for (i = 0; i < 5; i++)
        {
            printf("%c", *(ptr + 3*i));
        }
        ptr++;
        k++;
    }
    getchar();
    return 0;
}
```

Cevap:

6. Aşağıda farklı programlama dillerinden kodlar verilmiştir. Bu kodlarda yerine o satırdaki ekran çıktısını yazınız, T/F yerine ise; o satır hata veriyorsa F hata vermiyorsa T yazın. (Herbiri 2 puan.)

Matlab

```
no= 27
no ='dogrumu'
no= ['y','a','n','l','i','ş']
no=17.5
no
```

.....

Pascal

```
uses crt;
type
    renkler=(kirmizi, mavi, yesil, beyaz, siyah);
var
    i:integer;
    renk:string;
    arabarengi:renkler;
i=345;
cevre,yaricap:real;
const
    pi=3.14;
begin
    yaricap:=2;
    renk:=beyaz;
    cevre:=2*pi*yaricap;
    writeln(ROUND(cevre));
end.
```

7. Aşağıdaki tabloyu doldurunuz.

İlk yüksek seviyeli dildir	
Biçimsel tanımlı ilk dildir.	
Nesneye dayalı ilk dildir.	
Sistem programlama dilidir.	
Yorumlayıcı kullanan dillere örnekler	
Derleyici kullanan dillere örnekler	
Operatörlerin öncelik sıralamasını (niteliğine göre) yazınız.	
Programlama dilinde bütün tip hatalarının yakalanmasına ne denir?	
Dinamik tip bağlamalı dillere örnekler	
Statik tip bağlamalı dillere örnekler	
Dinamik tip bağlamanın avantajı	
Statik tip bağlamanın avantajı	
Tanımlama deyimlerinin kullanılmadığı ve değişkenlerin tiplerinin, varsayılan (<i>default</i>) kurallar ile belirlendiği tip bağlama ve sakıncası	
Değişkene, programda yer alan bir tanımlama deyimini ile bir tip ile bağlanmasının adı ve avantajı	

8. Bellek Bağlama konusu ile ilgili olarak aşağıdaki tabloyu doldurunuz.

- a) Sadece statik değişkenlerin bulunduğu dillerde gerçekleşmez.
- b) değişkenlere sadece işaretçi (pointer) değişkenler aracılığıyla ulaşılabilir. Bu değişkenlerin tip bağlaması derleme zamanında, bellek yeri bağlaması ise çalışma zamanında gerçekleşir.
- c) değişkenler için bellek gereksinimi derleme zamanında hesaplanamaz ve bu tür değişkenler için bellek yeri, çalışma zamanında bellekteki bellekten ayrılır. Örneğin altprogramların çağırılması gibi.
- d) ALGOL 60 ve bu çizgideki diller değişkenleri tanımlamaktadır. FORTRAN77 ve FORTRAN90 yerel olarak yığıt dinamik değişkenlere izin vermektedir. Pascal, C ve C++'da, lokal değişkenler, varsayılan olarak değişkenlerdir. FORTRAN I, II ve FORTRAN IV'de değişkenlerin hepsi değişkenlerdir.

Adı-Soyadı:

Numarası:

İmza :