CS383 Programming Languages

Quiz 9

1. Which is not correct about polymorphism?

a. A term can be used in many concrete contexts with different concrete types.

b. It is the ability of an object to take on many forms.

c. It makes typed constructs useful in more contexts.

d. Existential polymorphism is about code reuse.

2. Typed language need type inference.

a. True

b. False

in typed language the type is already annotated.

3. Which one is not a step of type inference?

a. Add type schemas

b. Generate type constraints

c. Determine subtypes

d. Solve type constraints

4. In the step of constraint generation, which simple rule is not totally correct?

a. G |-- x ==> x : s, {}

b. G |-- 2 ==> 2 : int, {}

c. G |-- false ==> false : bool, {}

d. G |-- true ==> true : bool, {}

5. Try to write down the constraint generation rule of function application

```
G |-- u1 ==> e1 : t1, q1
G |-- u2 ==> e2 : t2, q2
----------------------------------------------------------------
G |-- u1 u2==> e1 e2: a, q1 U q2 U {t1 = t2 -> a}
```

6. If type variable a is not in the domain of substitution S, S(a) = ?

a

7. What is the application order of (U o S) (a)

U(S(a))

8. What is the principal solution?

q = {a = b, b = c->c, c = int}

S(c)=int, S(b)=S(a)=int->int,
S(d)=d (for all d other than a, b, c