1. а) Аппликативный порядок:  
   (λx.x)((λx.x)( λz.(λx.x)z)) = (λx.x)((λx.x)(λz.z)) = (λx.x)(λz.z) = λz.z  
   Нормальный порядок:  
   (λx.x)((λx.x)( λz.(λx.x)z)) = (λx.x)( λz.(λx.x)z) = λz.(λx.x)z = λz.z
2. a) SS(KI) – нормальная форма  
   b) SSSCCC = SC(SC)CC = CC((SC)C)C = CC((SC)C)   
   c) WWWWWWWW = WWWWWWWW = WWWWWWWW = … = WWWWWWWW
3. a) Add 6 2 = λmnfx.nf(mfx) 6 2 = λmnfx.nf(mfx) (λfx.f(f(f(f(f(fx)))))) 2 = λnfx.nf((λfx.f(f(f(f(f(fx)))))) fx) 2 = λnfx.nf(f(f(f(f(f(fx)))))) 2 = λnfx.nf(f(f(f(f(f(fx)))))) (λfx.f(fx)) = λfx.(λfx.f(fx)) f(f(f(f(f(f(fx)))))) = λfx.f(f(f(f(f(f(f(fx))))))) = 8  
     
   b) Inc 1 = λnfx.f(nfx) 1 = λnfx.f(nfx) (λfx.fx) = λfx.f((λfx.fx) fx) = λfx.f(fx) = 2  
     
   d) Mult 6 2 = λmnf.m(nf) 6 2 = λmnf.m(nf) (λfx.f(f(f(f(f(fx)))))) 2 = λnf.( (λfx.f(f(f(f(f(fx)))))) (nf)) 2 = λnf.((λfx.f(f(f(f(f(fx)))))) (nf)) (λfx.f(fx)) = λf.((λfx.f(f(f(f(f(fx)))))) ((λfx.f(fx)) f)) = λf.(λx.((λfx.f(fx)) f) (((λfx.f(fx)) f) (((λfx.f(fx)) f)) (((λfx.f(fx)) f)) (((λfx.f(fx)) f)) (((λfx.f(fx)) f) x) ))))) = λf.(λx.(λx.f(fx))( (λx.f(fx)) ((λx.f(fx)) ((λx.f(fx)) ((λx.f(fx)) ((λx.f(fx)) x) ))))) = λf.(λx.(λx.f(fx))( (λx.f(fx)) ((λx.f(fx)) ((λx.f(fx)) ((λx.f(fx)) (f(fx)) ))))) = λf.(λx.(λx.f(fx))( (λx.f(fx)) ((λx.f(fx)) ((λx.f(fx)) ((f(f(f(fx)))) = λf.(λx.(λx.f(fx))( (λx.f(fx)) ((λx.f(fx)) (f(f(f(f(f(fx))))))))) = λf.(λx.(λx.f(fx))( (λx.f(fx)) (f(f(f(f(f(f(f(fx)))))))))) = λf.(λx.(λx.f(fx))( f(f(f(f(f(f(f(f(f(fx))))))))))) = λf.(λx.(f(f(f(f(f(f(f(f(f(f(f(fx))))))))))))) = λfx.f(f(f(f(f(f(f(f(f(f(f(fx)))))))))))) = 12  
     
      
   e) Dec 1 = λnfx.n(λgh.h(gf)) (λu.x) (λu.u) 1 = λnfx.n(λgh.h(gf)) (λu.x) (λu.u) λfx.fx = λfx.(λfx.fx) (λgh.h(gf)) (λu.x) (λu.u) = λfx.(λx.(λgh.h(gf)) x) (λu.x) (λu.u) = λfx.(λx.λh.h(xf)) (λu.x) (λu.u) = λfx.(λh.h((λu.x) f)) (λu.u) = λfx.(λh.h (x)) (λu.u) = λfx.((λu.u) x) = λfx.x = 0