PPL Quiz 4

Total points 15/18

Write your name and ID correctly.
There are 18 questions in this quiz (to be normalized to 6 marks). Each question carries 1 mark. The total time duration for the quiz is 30 minutes. Answer the questions and submit your responses.

The respondent's email address (**f20181119@pilani.bits-pilani.ac.in**) was recorded on submission of this form.

0 of 0 points

Name *

Shreyas Bhat Kera

BITS ID *

2018A7PS1119P

Questions 1-18

15 of 18 points

Choose the most appropriate answer

✗ The Correct parenthesis of the following lambda expression is (λ n . λ f . λ x . f (n f x)) (λ g . λ y . g y) Choose the most appropriate answer 0/1

- (λ n . (λ f . (λ x . f (n f x)))) (λ g . (λ y . (g y))) ✗
- (λ n . (λ f . (λ x . f (n f x)) (λ g . (λ y . (g y))))))
- (λ n . (λ f) . (λ x) . f (n f x)) (λ g . (λ y) . g y)
- (λ n . (λ f .(λ x . (f ((n f) x))))) (λ g . (λ y . (g y)))
- None of these

Correct answer

- (λ n . (λ f .(λ x . (f ((n f) x))))) (λ g . (λ y . (g y)))

✓ In order to reduce (λ x. (λ y . (λ f . f x) y)) (f y). we have to evaluate (λ y . (λ f . f x) y)[x->f y]Which of the following is the most correct answer for the above substitution? 1/1

- (λ y . (λ f . f (f y)) y)
- (λ z . (λ g . g (f y)) z) ✓
- (λ y . (λ g . g (f y)) y)
- (λ z . (λ f . f (f y)) z)
- None of these

✓ K = λ ab.a ; M=λ f.f f ; I = λ a.a .Which of the following is logically equivalent to K I M? 1/1

- ○ M
- ◉ I ✓
- ○ KI
- ○ (λ a.a) (λ a.a)
- ○ None of these

✓ Which of the following is true for x (λ x.x) w y 1/1

- ◉ One of the x is free variable ✓
- ○ Both the x are bound
- ○ It is same as x (λ y.y) y w
- ○ It is same as g (λ g.g) w y
- ○ None of these

✓ After Carrying out the following substitutions (x (λ x . x y) λ z . x y z)[x->g] the most appropriate answer is 1/1

- (g (λ x . x y) λ z . g y z) ✓
- (f (λ g . g y) λ z . x y z)
- (g (λ g . g y) λ z . x y z)
- (x (λ x . x y) λ z . g y z)
- None of these

✓ After Carrying out the following substitutions(λ x . λ y . f x y)[y->x] the most appropriate answer is 1/1

- (λ x . λ y . f x x)
- (λ z . λ y . f z x)
- (λ x . λ g . f x g) ✓
- (λ x . λ y . f y y)
- None of these

✓ After Carrying out the following substitutions ((λ x . f x) λ f . f x)[f->g x] the most appropriate answer is 1/1

- ((λ x . (g x) x) λ f . f x)
- ((λ x . (g x) x) λ f . (g x) x)
- ((λ z . (g x) z) λ f . (g x) z)
- ((λ z . (g x) z) λ f . f x) ✓
- None of these

✓ Which are the free variables for expression λ x . x y λ z . x z 1/1

- Only y ✓
- Only z
- y and x
- x, y and z
- None of these

✓ Which are the free variables for expression x λ x . x 1/1

- x ✓
- None of the occurrence of is free
- Both the occurrences of x are free
- This is not a valid lambda expression

✓ Which are the free variables for expression λ x . x y λ x . y x 1/1

- ○ x and y
- ◉ All occurrences of y are free ✓
- ○ One occurrence of x and all the occurrences of y are free
- ○ None of the above

✓ Which are the free variables for expression (λ x . x y) λ z . w λ w . w z y x 1/1

- ○ x, y, z and w
- ◉ y, w, x ✓
- ○ y and w
- ○ only y
- ○ None of these

✓ Which are the free variables for expression x λ z . x λ w . w z y 1/1

- ◉ x, y ✓
- ○ x, y ,z
- ○ x, y, z, w
- ○ only x
- ○ None of these

✗ What is the most reduced form of (λ x . x x x) (λ x . x x x) 0/1

- ( ) (λ x . x x x)
- (•) (λ x . x x x) (λ x . x x x) ✗
- ( ) (λ x . x x x) (λ x . x x x) (λ x . x x x)
- ( ) (λ x . x x x) (λ x . x x x) (λ x . x x x) (λ x . x x x)..
- ( ) None of these

Correct answer

- (•) (λ x . x x x) (λ x . x x x) (λ x . x x x) (λ x . x x x)..

✓ Is ((λ x . x (λ y . x y z y) x) x y) equivalent to ((λ y . y (λ k . y k z k) y) y k) ? 1/1

- ( ) Yes
- (•) No ✓
- ( ) Can't Say

✓ C= λfab.fba , K = λab.a , M=λ f.f f , I = λa.a What is the most reduced form of CKMI ? 1/1

- ( ) KMI
- (•) I ✓
- ( ) M
- ( ) K

✓ What is the most reduced form after beta -reduction of (λx. xx) ((λy.y) (λz.z)) using call-by-value 1/1

- ○ It does not terminate/ Stack overflow
- ○ (λ z.z) (λz.z)
- ◉ (λz.z) ✓
- ○ (λy.y)(λz.z)

✗ S = λ xyz.(xz) (yz) , I = λ x.x , What is SII after call by value beta-reduction 0/1

- ○ λ z.z z
- ○ z
- ◉ (yz) ✗
- ○ λ y.y z

Correct answer

- ◉ λ z.z z

✓ What is the most reduced form of the call by name beta -reduction of (λ x.y) ((λ y.y y)(λ y.y y)) 1/1

- ○ goes in the loop / Stack overflow
- ○ (lambda x.y) ((lambda y.y y)(lambda y.y y))
- ◉ y ✓
- ○ lambda x.y