

Computer Science Tripos Part IA
Defence Against the Dark Arts
Supervision 1

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1 Section One

(a)

Draw a truth table for logical XOR?

[3 marks]

p	q	$p \wedge q$
0	0	0
0	1	1
1	0	1
1	1	0

(b)

Consider the following ML functions:

```
fun p f s (t::h) = (f h) t s @ p (f p (r f))::q h
and q a b = (b a p (p q) a) b :: (q b);
```

- (i) What is the ML type associated with p?
- (ii) What does the function p do?
- (iii) Why does it do it?
- (iv) How long does it take?

[10 marks]

- (i) ...
- (ii) ...
- (iii) ...
- (iv) ...

2 Section Two

Do some maths

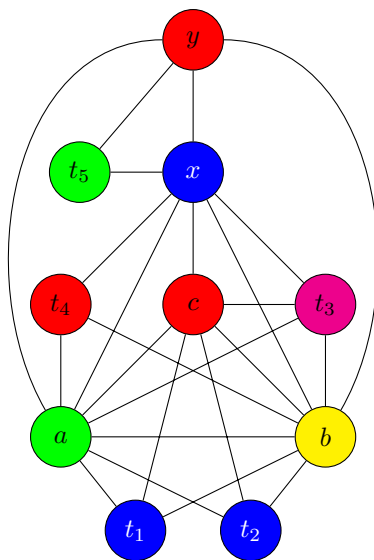
[10 marks]

$$\int \sin(x) dx = -\cos(x) + C$$

$$\int x^2 dx = \frac{x^3}{3} + C$$

Give an example of a 5-colourable graph and write some words

[10 marks]



“some words”

- words
- words
- more words