

# TRYGNOMETRY EXAM

FULL TIME – 60 MINS

FM – 25

1. FIND THE VALUE OF THE FUNCTIONS (1X2=2)

a.  $\operatorname{cosec} (-1410^\circ)$

b.  $\cot (-15\pi/4)$

2. PROVE THE FOLLOWING

a.  $2 \sin^2 3\pi + 2 \cos^2 \pi/4 + 2 \sec^2 \pi/3 = 10$  (2)

b.  $\cos (3\pi/4 + x) - \cos (3\pi/4 - x) = -\sqrt{2}\sin x$  (2)

c.  $(\sin x - \sin y) / (\cos x + \cos y) = \tan (x - y)/2$  (3)

d.  $(\sin x + \sin 3x) / (\cos x + \cos 3x) = \tan 2x$  (3)

e.  $\tan 4x = (4\tan x (1 - \tan^2 x)) / (1 - 6\tan^2 x + \tan^4 x)$   
(3)

f.  $\cos 4x = 1 - 8\sin^2 x * \cos^2 x$  (3)

g.  $\cos 6x = 32\cos^6 x - 48\cos^4 x + 18\cos^2 x - 1$  (4)

h.  $(\cos x - \cos y)^2 + (\sin x - \sin y)^2 = 4\sin^2 ((x - y)/2)$   
(3)