KFUPM – Department of Mathematics & Statistics Code **01**

MATH101 – Term 181

Quiz 6 (Duration: 20 Minutes)

Name: _____ ID #: _____Section: 02

Q.1(**2 pts**) Prove the identity $2\sin^{-1}x = \cos(1-2x^2)$

Q.2(**4 pts**) Find the limit

a) $\lim_{x\to 0^+}[(\sin x)(\ln x)]$

b) $\lim_{x\to 0}\cot 2x \sin 6x$

Q.3 (**4 pts**) Consider the function $f(x) = \cos^2 x - 2\sin x\,,\ \ 0 \le x \le 2\pi$.
a. Find the intervals on which f is *increasing* or *decreasing*
b. Find the local *maximum* and *minimum* values of f
c. Find the intervals of *concavity* and *inflection points* of f