

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Light, Man and Environment **Subject Code** : CCN2023

Session : Semester Two, 2015/16

Numerical Answers

Question B1

- (a)(ii) 0.13 cd/m²
- (c)(i) $P = 1.1820(S - 0.3)^{0.8741}$
- (c)(iii) 72.8416 cm

Question B2

- (a) 1.5510%
- (b) 3432 kWh
- (c) 2733.358 kWh

Question B3

- (a) 111.2944 lm/W
- (b) 2125566.366 cd
- (c) 1353177.576 cd/m²
- (d) 2361.7404 lux
- (e) 200.3299 lux

Question B4

- (a) Room index = 2.1429
Utilization factor = 0.93
- (b) $\Phi = 6451.6129$ lm
- (c) Overall glare index = 25.1918

Question B5

- (a)(i) 1.1813 ach
- (a)(ii) $C_i = 1045.2381$ ppm
- (b)(i) -8 W/m²
- (b)(ii) PMV = -0.3601; PPD = 7.6983%

Question B6

- (a)(i) 80.4431 dB
- (a)(ii) 0.9857 s
- (a)(iv) 80.2747 dB

Question B7

- (a)(i) 14:40
- (a)(ii) $\alpha = 52.9000^\circ$, $A = 275.4641^\circ$
- (b)(i) VSA = 78.6901° ; HSA = 78.6901°