

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

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

**Session** : Semester Two, 2016/17

**Numerical Answers**

**Question B1**

(a)(i) < 23.75 cm or > 26.25 cm

(b)(ii) Luminances (cd/m <sup>2</sup> )	0.1	0.2	0.3	0.4	0.5
% detection	5	10	35	60	85

Absolute threshold = 0.36 cd/m<sup>2</sup>

(b)(iii) 17.2318 units

**Question B2**

(a) 4.0013%

**Question B3**

- (a) 134.9013 lm/W
- (b) 2683776.4 cd
- (c) 26837.764 lux, 26773.4820 lux
- (d) 2

**Question B4**

- (a) 1.1852
- (b) 0.43
- (c) 4 luminaires along L x 2 luminaires along W
- (d) 33.0129

**Question B5**

- (a) Vertical angles: 37.30°, 14.70°; horizontal angles: 44.13°, 22.10°
- (b) 2, 212.625 lux
- (d) 651.3589 lux

**Question B6**

- (b) 0.3
- (c) 6.7 W/m<sup>2</sup>, 0.3240

**Question B7**

- (a) 250Hz: NC 45, 500 Hz: NC 60 – 65, 1 kHz: NC 65 – 70, 2 kHz: NC 60 – 65, 4 kHz: NC 60  
Overall NC 69
- (b) 76.6702 dB
- (c) 23.9311 m<sup>2</sup>, 69.4012 dB
- (d) 1.1068 s

**Question B8**

- (b)(i) 13:50
- (b)(ii) 67.7385°, 256.5792°

**Question B9**

- (a) 78.6901 °, 80.9097°
- (d) 0.5307