

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Operating Systems

Subject Code : CCN2273

Session : Semester Two, 2016/17

Numerical Answers

Question B7

- (a) Total distance that the disk arm moves = 2912
Average = 416
- (b) Total distance that the disk arm moves = 1920
Average = 274.3

Question C2

- (d)(i) Average turnaround time = 21.8 ms
Average normalized turnaround time = 2.91
- (d)(ii) Average turnaround time = 30.8 ms
Average normalized turnaround time = 3.95

Question C3

- (b) Size of a frame = 16 KB.
- (c)(i) Length of physical address = 30 bits.
- (c)(ii) Number of bits for frame number = 16 bits
Number of bits for frame offset = 14 bits
- (d) Length of logical address = 27 bits. Hence, $27 - 14 = 13$ bits are used for specifying the page number.
- (e) Number of page table entries = 2^{13} entries
- (f) Number of page table entries in inverted page table = 64K
- (h)(i) Hit ratio = 40%
- (h)(ii) Hit ratio = 60%