Q1.

(i) industrial engineering method of cost estimation involves a detailed analysis of the production process to determine the cost of a product or service.

(ii) 1- when high accuracy is needed.
2- when producing a new product.
3- when operations are highly technical.

(iii)

Q2. (i) High low method. ('000')

21,000hr = 184(000)
4,000hr = 70(000)

$$\frac{184 - 70}{21,000 - 4000} = \frac{114}{17,000} = 0.0067 \text{ sh ph}$$

$y = a + bx$. $184 = a + (0.0067 \times 21,000)$

$184 = a + 140.7$

$184 - 140.7 = a$ $y = 43.3 + 0.0067x$

(ii)

| x | y | xy | $x^2$ |
|---|---|---|---|
| 10,600 | 120 | 1,272,000 | 112,360,000 |
| 17,000 | 180 | 3,060,000 | 289,000,000 |
| 4000 | 70 | 280,000 | 16,000,000 |
| 21,000 | 184 | 3,864,000 | 441,000,000 |
| 19,000 | 178 | 3,382,000 | 361,000,000 |
| 7,800 | 100 | 780,000 | 60,840,000 |
| 14,000 | 172 | 2,408,000 | 196,000,000 |
| 12,000 | 154 | 1,848,000 | 144,000,000 |
| | 1,158 | 16,894,000 | 1,620,200,000 |

114,000

17,000

b> $\frac{8(16,894,000) - (105,400)(1,158)}{8(1,620,200,000) - (105,400)^2}$

$\frac{135,152,000 - 122\,653,200}{12,961,600,000 - 11,110,160,000}$

$\frac{12,498,800}{1,851,440,000} = 0.00675$

a- $\frac{1,158 - (0.00675 \times 105,400)}{8} = \frac{446.55}{8} = 55.82$

$y = 55.82 + 0.00675x$