

02.

Ans (1)

Given :

5 day 20°C BOD,

$$Y_{20} = 100 \text{ mg/l}$$

To find one day 37°C BOD

Soln

1. The BOD at 20°C is given by

$$Y_t = L [1 - (10)^{-k_D t}]$$

Assume,

$$k_D(20^{\circ}) = 0.1$$

$$100 = L [1 - (10)^{-0.1 \times 5}]$$

$$100 = L [1 - (10)^{-0.5}]$$

$$L = 146.2 \text{ mg/l}$$

2. we know that

$$k_D(37^{\circ}) = 0.1 \left[1.047 \right]^{37-20}$$

$$0.1 [1.047]^{17}$$

$$= 0.1 \times 2.2 = 0.22$$

02,

3. we know that

$$y_t = L [1 - (10)^{-kDt}]$$

$$y_t [37^\circ\text{C}] = 146.2 [1 - (10)^{-k_D(37^\circ\text{C}) \times 1}]$$

$$[b = 1 \text{ day}]$$

$$= 146.2 [1 - (10)^{-2.2 \times 1}] = 58.1 \text{ mg/d}$$

Ans